10/539/960 Salani Sharma

*****INVENTOR RESULTS********

4/2/07

```
=> d que l77
L2            7 SEA FILE=REGISTRY ABB=ON  PLU=ON  (1070-01-5/BI OR 1116-76-3/BI
                 OR 112-30-1/BI OR 25339-17-7/BI OR 50-81-7/BI OR 526-98-7/BI
                 OR 7732-18-5/BI)
L3            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7
L4           14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
L5            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  50-81-7
L6           15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
L7          479 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6
L8          560 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLOHEXULOSONIC ACID?
L11          65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13         703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11
                 OR L12)
L14         407 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KGA
L15        1086 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L13 OR L14)
L16       82879 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5
L17       84922 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "L-ASCORBIC ACID"+NT/CT
L18        1957 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "ASCORBATE OXIDASE"/CT
L19        1941 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "ASCORBATE PEROXIDASE"/CT
L20        2483 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "SODIUM ASCORBATE"/CT
L21       83872 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ASCORBIC ACID?
L22          69 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ADENEX OR ALLERCORB OR
                 ASCOLTIN OR ASCORVIT OR ASCORIN OR CANTAN OR CANTAXIN OR CECON
                 OR CEKLIN OR CELIN OR CEVEX OR CEVIMAN OR CETEBE OR CECON
L23      110498 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L16 OR L17 OR L18 OR L19 OR
                 L20 OR L21 OR L22)
L24         372 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L23
L25           9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L24 AND (EXTRACTION?)
L28          27 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND EXTRACTION?
L29           9 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND L5
L30           7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND AMINE?
L31          12 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L29 OR L30)
L32          15 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L28 AND L2
L33          15 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L30 OR L31 OR L32 OR L25)
L34          76 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND EXTRACT?
L35          54 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND L2
L36          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND L5
L37          11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L34 AND AMINE?
L38          28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L36 OR L37)
L39          28 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L38 AND (PY<2004 OR AY<2004
                 OR PRY<2004)
L40          31 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L39 OR L33)
L41          21 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L35 AND L5
L42          31 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L41 OR L40)
L67          34 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("DOMSCHKE T"/AU OR "DOMSCHKE
                 TH"/AU OR "DOMSCHKE THOMAS"/AU)
L68          39 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("MERGER M"/AU OR "MERGER
                 MARTIN"/AU)
L69          11 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("DECKERT P"/AU OR "DECKERT P
                 M"/AU OR "DECKERT PETRA"/AU)
L70         129 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("SAUER F"/AU OR "SAUER F
                 C"/AU OR "SAUER F D"/AU OR "SAUER F G"/AU OR "SAUER F M"/AU OR
                 "SAUER FRED"/AU OR "SAUER FREDERIC"/AU OR "SAUER FREDERIC
                 G"/AU OR "SAUER FREDERIC GEORGE"/AU OR "SAUER FREDERICK"/AU)
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L72          164 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ("SAUER FRED"/AU OR "SAUER
                 FREDERIC"/AU OR "SAUER FREDERIC G"/AU OR "SAUER FREDERIC
                 GEORGE"/AU OR "SAUER FREDERICK"/AU OR "SAUER FRIEDER"/AU OR
                 "SAUER FRIEDHELM"/AU OR "SAUER FRIEDRICH"/AU OR "SAUER
                 FRIEDRICH A"/AU OR "SAUER FRIEDRICH G"/AU OR "SAUER F"/AU OR
                 "SAUER F C"/AU OR "SAUER F D"/AU OR "SAUER F G"/AU OR "SAUER F
                 M"/AU OR "SAUER FR G"/AU)
L73          164 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L70 OR L72)
L74            3 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L67 AND L68 AND L69 AND L73
L75            7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L67 OR L68 OR L69 OR L70 OR
                 L72) AND L15
L76            7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L74 OR L75)
L77            4 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L76 NOT L42


=> d que l84
L3             1 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7
L4            14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
L6            15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
L7           479 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6
L8           560 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-GULONIC ACID?
L9             7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-IDONIC ACID?
L10            2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLOHEXULOSONIC ACID?
L11           65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12           43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13          703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11
                 OR L12)
L14          407 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KGA
L43           98 SEA L6
L44          648 SEA (L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14)
L45          648 SEA (L43 OR L44)
L78           52 SEA DOMSCHKE T?/AU
L79          126 SEA MERGER M?/AU
L80           62 SEA DECKERT P?/AU
L81          848 SEA SAUER F?/AU
L82            7 SEA L78 AND L79 AND L80 AND L81
L83           13 SEA (L78 OR L79 OR L80 OR L81) AND L45
L84           14 SEA (L82 OR L83)


=> dup rem l77,l84
FILE 'HCAPLUS' ENTERED AT 11:35:22 ON 02 APR 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2007 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'WPIX' ENTERED AT 11:35:22 ON 02 APR 2007
COPYRIGHT (C) 2007 THE THOMSON CORPORATION
PROCESSING COMPLETED FOR L77
PROCESSING COMPLETED FOR L84
L85            8 DUP REM L77 L84 (10 DUPLICATES REMOVED)
                 ANSWERS '1-7' FROM FILE HCAPLUS
                 ANSWER '8' FROM FILE WPIX

=> d ibib abs retable l85 tot

L85  ANSWER 1 OF 8  HCAPLUS  COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER:         2005:638716  HCAPLUS  Full-text
DOCUMENT NUMBER:          143:95920
TITLE:                    Method for producing keto-L-gulonic acid spray
```

granules
INVENTOR(S): ***Merger, Martin***; Faust, Tillmann; Bayer, Robert
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 6 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005065655	A2	20050721	WO 2004-EP14824	20041230
WO 2005065655	A3	20051103		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 102004001187	A1	20050804	DE 2004-102004001187	20040105
EP 1703897	A2	20060927	EP 2004-804409	20041230
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				

PRIORITY APPLN. INFO.: DE 2004-102004001187A 20040105
WO 2004-EP14824 W 20041230

AB The invention relates to a method for producing free-flowing, dustless keto-L-gulonic acid granules from fine-particle, pure keto-L-gulonic acid. According to said method, an aqueous or water-containing solution of keto-L-gulonic acid is supplied to (a) a spray fluidized bed drying installation, (b) a single-substance nozzle atomization drying installation, or (c) a disk atomization drying installation. Keto-L-gulonic acid is obtained from fermented sodium ketogulonate and is processed for ascorbic acid production

L85 ANSWER 2 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2005:540560 HCAPLUS Full-text
DOCUMENT NUMBER: 143:60191
TITLE: Esterification method for the production of C1-10 alkyl 2-keto-L-gulonates
INVENTOR(S): ***Domschke, Thomas; Merger, Martin;*** Haese, Frank; Resch, Peter; Faust, Tillmann
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 11 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2005056511	A1	20050623	WO 2004-EP14069	20041210
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH,				

CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

DE 10359023	A1	20050714	DE 2003-10359023	20031215
EP 1697297	A1	20060906	EP 2004-803718	20041210
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, FI, RO, CY, TR, BG, CZ, EE, HU, PL, SK, IS				
CN 1894196	A	20070110	CN 2004-80037276	20041210
PRIORITY APPLN. INFO.:			DE 2003-10359023	A 20031215
			WO 2004-EP14069	W 20041210

OTHER SOURCE(S): CASREACT 143:60191

AB A method is described for the production of C1-10 alkyl 2-keto-L-gulonate esters (e.g., Me 2-keto-L-gulonate) by the esterification of ***2- keto-L-gulonic acid*** anhydride with an anhydrous C1-10 alkanol (e.g., methanol) in the presence of an acidic homogeneous catalyst (e.g., sulfuric acid) in a reaction cascade consisting of at least two reactors, where one of the reactors is a tube reactor, without removing the water produced during the esterification from the reaction chamber.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
F Hoffmann-La Roche Ag	1995			EP 0671405 A	HCAPLUS
Oklobdzija, M	1999			WO 9903853 A	HCAPLUS
Takeda Chemical Industr	1993			EP 0535927 A	HCAPLUS

L85 ANSWER 3 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2004:428878 HCAPLUS Full-text
DOCUMENT NUMBER: 140:425178
TITLE: Manufacture of C4-10 alkyl esters of *2-keto-L-gulonic acid*
INVENTOR(S): ***Domschke, Thomas; Merger, Martin;*** Grossmann, Georg; Faust, Tillmann
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 19 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004043880	A2	20040527	WO 2003-EP12458	20031107
WO 2004043880	A3	20040729		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,

	BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
AU 2003293666		A1	20040603	AU 2003-293666	20031107
EP 1562965		A2	20050817	EP 2003-789016	20031107
EP 1562965		B1	20060405		
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1711276		A	20051221	CN 2003-80103001	20031107
JP 2006505607		T	20060216	JP 2004-550955	20031107
AT 322499		T	20060415	AT 2003-789016	20031107
US 2006058550		A1	20060316	US 2005-534334	20050606
US 7091375		B2	20060815		
PRIORITY APPLN. INFO.:				DE 2002-10252659 A	20021111
				WO 2003-EP12458 W	20031107

AB The title esters, intermediates for vitamin C manufacture, are manufactured by 2-step esterification of *2-keto-L- gulonic acid* (*KGA*) with C4-10 alkanols. The formation of solid deposits on the walls of the apparatus is avoided in the process. The *KGA* in aqueous solution reacts with an alc. up to an esterification degree of 20-70% in a pre-esterification process carried out in the presence of a homogeneous acid catalyst, e.g., H2SO4, and the obtained product is dehydrated with an unsatd., (un)branched C4-C10 alc. in a continuous rectification device, whereby the esterification reaction continues, BuOH preferably being used as the alkyl alc.

L85 ANSWER 4 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4

ACCESSION NUMBER: 2004:546516 HCAPLUS Full-text
DOCUMENT NUMBER: 141:87901
TITLE: Method for extracting *2-keto-L-gulonic acid* from a polar, preferably aqueous solvent
INVENTOR(S): *Domschke, Thomas; Merger, Martin; Deckert, Petra; Sauer, Friedrich*
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004056841	A1	20040708	WO 2003-EP14192	20031213
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10260085	A1	20040701	DE 2002-10260085	20021219
DE 10316268	A1	20041028	DE 2003-10316268	20030408
CA 2510026	A1	20040708	CA 2003-2510026	20031213
AU 2003290036	A1	20040714	AU 2003-290036	20031213
EP 1575968	A1	20050921	EP 2003-782392	20031213

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

JP 2006516148	T	20060622	JP 2005-502539		20031213
US 2006149084	A1	20060706	US 2005-539960		20050617
PRIORITY APPLN. INFO.:			DE 2002-10260085	A	20021219
			DE 2003-10316268	A	20030408
			WO 2003-EP14192	W	20031213

AB The invention relates to a method for extracting *2-keto- L-gulonic acids* from a polar, preferably aqueous solvent, preferably from a solvent which contains a mixture of ascorbic acid and *2-keto-L-gulonic acid* , by means of liquid-liquid extraction with the aid of an extraction agent which contains a tertiary amine and a polar organic diluent. Preferably, the inventive method also comprises steps for retro-extracting the *2- keto-L-gulonic acid* and for returning the extraction agent. The invention also relates to a method for producing ascorbic acid from *2-keto-L- gulonic acid* and for isolating the thus produced ascorbic acid.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Basf Ag	1990			EP 0359042 A	HCAPLUS
Basf Ag	1990			EP 0359043 A	HCAPLUS

L85 ANSWER 5 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5

ACCESSION NUMBER: 2004:60490 HCAPLUS Full-text
DOCUMENT NUMBER: 140:110411
TITLE: Dialkyl formamide in extraction of ascorbic acid from a polar solvent containing ascorbic acid and *2-keto-L-gulonic acid*.
INVENTOR(S): Kaibel, Gerd; *Merger, Martin; Domschke, Thomas; Deckert, Petra; Sauer, Friedrich*
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004007474	A1	20040122	WO 2003-EP7256	20030707
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10231890	A1	20040205	DE 2002-10231890	20020712
DE 10231890	B4	20040701		
CA 2492155	A1	20040122	CA 2003-2492155	20030707
AU 2003246393	A1	20040202	AU 2003-246393	20030707
EP 1523477	A1	20050420	EP 2003-763731	20030707
EP 1523477	B1	20051102		

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1668607	A	20050914	CN 2003-816571		20030707
AT 308534	T	20051115	AT 2003-763731		20030707
ES 2250914	T3	20060416	ES 2003-3763731		20030707
US 2005197504	A1	20050908	US 2004-515625		20041206
BR 2004005871	A	20060905	BR 2004-5871		20041228
PRIORITY APPLN. INFO.:			DE 2002-10231890	A	20020712
			WO 2003-EP7256	W	20030707

AB The invention relates to a method for the separation of ascorbic acid from a mixture containing ascorbic acid and *2-keto-L- gulonic acid* in a polar, preferably aqueous solvent, by means of liquid/liquid extraction using an amide. The method preferably also comprises steps for the back-extraction of the ascorbic acid, recycling of the extraction solvent and/or the back extraction solvent and for isolation of the ascorbic acid from the back extraction solvent. The invention further relates to a method for the production of ascorbic acid from ketogulonic acid and isolation of the ascorbic acid so produced.

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Boettcher, A	2001			US 6197977 B1	HCAPLUS
Fahrni, P	1991			US 5041563 A	HCAPLUS
Hoffmann La Roche	1936			CH 187933 A	HCAPLUS

L85 ANSWER 6 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 6

ACCESSION NUMBER: 2004:525926 HCAPLUS Full-text
DOCUMENT NUMBER: 141:71788
TITLE: Procedure for extracting *2-keto-L-gulonic acid* from a polar solvent using a tertiary amine
INVENTOR(S): *Domschke, Thomas; Merger, Martin; Deckert, Petra; Sauer, Friedrich*
PATENT ASSIGNEE(S): BASF Ag, Germany
SOURCE: Ger. Offen., 10 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10260085	A1	20040701	DE 2002-10260085	20021219
CA 2510026	A1	20040708	CA 2003-2510026	20031213
WO 2004056841	A1	20040708	WO 2003-EP14192	20031213

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003290036	A1	20040714	AU 2003-290036	20031213
EP 1575968	A1	20050921	EP 2003-782392	20031213

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,

IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK

CN 1729199	A	20060201	CN 2003-80106798		20031213
JP 2006516148	T	20060622	JP 2005-502539		20031213
US 2006149084	A1	20060706	US 2005-539960		20050617
PRIORITY APPLN. INFO.:			DE 2002-10260085	A	20021219
			DE 2003-10316268	A	20030408
			WO 2003-EP14192	W	20031213

AB A procedure for extracting *2-keto-L- gulonic acid* (I) from a polar, preferably aqueous solvent, preferably from a solvent which contains a mixture of ascorbic acid and I is described by means of liquid-liquid extraction with an extractant which contains a tertiary-amine (e.g., trioctylamine) extractant and a polar organic diluent. A procedure for the production of ascorbic acid from I via a lactonization reaction is described along with isolation of the manufactured ascorbic acid.

L85 ANSWER 7 OF 8 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 7
ACCESSION NUMBER: 2003:319854 HCAPLUS Full-text
DOCUMENT NUMBER: 138:319807
TITLE: Method for isolating salts of organic acids from a fermentation broth and for releasing the organic acid
INVENTOR(S): Rauls, Matthias; Voss, Hartwig; Faust, Tillmann; *Domschke, Thomas; Merger, Martin*
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003033448	A1	20030424	WO 2002-EP11306	20021009
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10149869	A1	20030424	DE 2001-10149869	20011010
EP 1436245	A1	20040714	EP 2002-785181	20021009
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, SK				
CN 1568299	A	20050119	CN 2002-820087	20021009
US 2004262161	A1	20041230	US 2004-490743	20040409
PRIORITY APPLN. INFO.:			DE 2001-10149869	A 20011010
			WO 2002-EP11306	W 20021009

AB A method for isolating salts of organic acids (e.g., sodium 2-keto-L-gulonate) from an aqueous fermentation broth is described which comprises partial evaporation crystallization and consecutive or simultaneous displacement precipitation of the salts, as well as for releasing the organic acid (e.g., *2- keto-L-gulonic acid*) from the crystallizate, preferably by an electromembrane process.

RETABLE

Referenced Author	Year	VOL	PG	Referenced Work	Referenced

(RAU)	(RPY)	(RVL)	(RPG)	(RWK)	File
Fouache, C	2001			US 6280985 B1	HCAPLUS
Hoffmann La Roche	1997			EP 0805210 A	HCAPLUS
Ikawa, K	1985			US 4491668 A	HCAPLUS
Moore, K	2001			WO 0109074 A	HCAPLUS
Oka, M	1998			US 5747306 A	HCAPLUS
Pfizer & Co C	1958			GB 800634 A	HCAPLUS
Sante, R	1990			EP 0403351 A	HCAPLUS
Shionogi & Co Ltd	1977			JP 52066684 A	HCAPLUS
Zappi, G	2001			US 6187570 B1	HCAPLUS

L85 ANSWER 8 OF 8 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
ACCESSION NUMBER: 2006-709323 [74] WPIX
DOC. NO. CPI: C2006-216139 [74]
TITLE: Process is for separation of ascorbic acid from solvent comprising mixture containing ascorbic acid and 2-ceto-L-gulonic acid in a polar solvent, preferably aqueous, by means of liquid-liquid extraction with amide
DERWENT CLASS: B03; E13
INVENTOR: ***DECKERT P; DOMSCHKE T;*** KAIBEL G; ***MERGER M; SAUER F***
PATENT ASSIGNEE: (BADI-C) BASF AG
COUNTRY COUNT: 1

PATENT INFO ABBR.:

PATENT NO	KIND	DATE	WEEK	LA	PG	MAIN IPC
BR 2004005871	A	20060905	(200674)*	PT	1[0]	

APPLICATION DETAILS:

PATENT NO	KIND	APPLICATION	DATE
BR 2004005871	A	BR 2004-5871	20041228

PRIORITY APPLN. INFO: BR 2004-5871 20041228
AN 2006-709323 [74] WPIX
AB BR 200405871 A UPAB: 20061120
NOVELTY - The separation process of ascorbic acid from solvent involves a mixture containing ascorbic acid and 2-ceto-L-gulonic acid in a polar solvent, preferably aqueous, using liquid-liquid extraction with amide. Also involved are stages for contra-extraction of ascorbic acid, recycling of the agent of extraction and/or the agent of contra-extraction. The ascorbic acid is isolated from the agent of contra-extraction.
USE - For separation of ascorbic acid from a solvent.

**********QUERY RESULTS**********

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                 OR 112-30-1/BI OR 25339-17-7/BI OR 50-81-7/BI OR 526-98-7/BI
                OR 7732-18-5/BI)
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L4           14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
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L6           15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
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L8          560 SEA FILE=HCAPLUS ABB=ON   PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA FILE=HCAPLUS ABB=ON   PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L-XYLOHEXULOSONIC ACID?
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L12          43 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
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                OR L12)
L14         407 SEA FILE=HCAPLUS ABB=ON   PLU=ON  KGA
L15        1086 SEA FILE=HCAPLUS ABB=ON   PLU=ON  (L13 OR L14)
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L17       84922 SEA FILE=HCAPLUS ABB=ON   PLU=ON  "L-ASCORBIC ACID"+NT/CT
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L19        1941 SEA FILE=HCAPLUS ABB=ON   PLU=ON  "ASCORBATE PEROXIDASE"/CT
L20        2483 SEA FILE=HCAPLUS ABB=ON   PLU=ON  "SODIUM ASCORBATE"/CT
L21       83872 SEA FILE=HCAPLUS ABB=ON   PLU=ON  ASCORBIC ACID?
L22          69 SEA FILE=HCAPLUS ABB=ON   PLU=ON  ADENEX OR ALLERCORB OR
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                OR CEKLIN OR CELIN OR CEVEX OR CEVIMAN OR CETEBE OR CECON
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                L20 OR L21 OR L22)
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L25           9 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L24 AND (EXTRACTION?)
L28          27 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L15 AND EXTRACTION?
L29           9 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L28 AND L5
L30           7 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L28 AND AMINE?
L31          12 SEA FILE=HCAPLUS ABB=ON   PLU=ON  (L29 OR L30)
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L36          21 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L34 AND L5
L37          11 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L34 AND AMINE?
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L41          21 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L35 AND L5
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L4           14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
L5            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  50-81-7
L6           15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
L7          479 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L6
L8          560 SEA FILE=HCAPLUS ABB=ON   PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA FILE=HCAPLUS ABB=ON   PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA FILE=HCAPLUS ABB=ON   PLU=ON  L-XYLOHEXULOSONIC ACID?
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L11          65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13         703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11
                OR L12)
L14         407 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KGA
L21       83872 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ASCORBIC ACID?
L22          69 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ADENEX OR ALLERCORB OR
                ASCOLTIN OR ASCORVIT OR ASCORIN OR CANTAN OR CANTAXIN OR CECON
                OR CEKLIN OR CELIN OR CEVEX OR CEVIMAN OR CETEBE OR CECON
L43          98 SEA L6
L44         648 SEA (L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14)
L46       95929 SEA L5
L47      124495 SEA (L21 OR L22)
L48      137966 SEA (L46 OR L47)
L49         707 SEA (L43 OR L44)
L50         250 SEA L49 AND L48
L51          22 SEA L50 AND EXTRACT?


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                 OR 112-30-1/BI OR 25339-17-7/BI OR 50-81-7/BI OR 526-98-7/BI
                OR 7732-18-5/BI)
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L4           14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
L5            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  50-81-7
L6           15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
L7          479 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6
L8          560 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLOHEXULOSONIC ACID?
L11          65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13         703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11
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L14         407 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KGA
L15        1086 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L13 OR L14)
L16       82879 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L5
L17       84922 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "L-ASCORBIC ACID"+NT/CT
L18        1957 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "ASCORBATE OXIDASE"/CT
L19        1941 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "ASCORBATE PEROXIDASE"/CT
L20        2483 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "SODIUM ASCORBATE"/CT
L21       83872 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ASCORBIC ACID?
L22          69 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ADENEX OR ALLERCORB OR
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L23      110498 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L16 OR L17 OR L18 OR L19 OR
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L53        3396 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L52
L54        8087 SEA FILE=HCAPLUS ABB=ON  PLU=ON  "AMINES (L) TERTIARY"/CT
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L58        5902 SEA FILE=HCAPLUS ABB=ON  PLU=ON  OCTYLAMINE?
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L61       23813 SEA FILE=HCAPLUS ABB=ON  PLU=ON  TERTIARY AMINE?
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L63           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L15 AND L23 AND L62


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L2            7 SEA FILE=REGISTRY ABB=ON  PLU=ON  (1070-01-5/BI OR 1116-76-3/BI
                 OR 112-30-1/BI OR 25339-17-7/BI OR 50-81-7/BI OR 526-98-7/BI
                OR 7732-18-5/BI)
L3            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7
L4           14 SEA FILE=REGISTRY ABB=ON  PLU=ON  526-98-7/CRN
L5            1 SEA FILE=REGISTRY ABB=ON  PLU=ON  50-81-7
L6           15 SEA FILE=REGISTRY ABB=ON  PLU=ON  (L3 OR L4)
L7          479 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L6
L8          560 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA FILE=HCAPLUS ABB=ON  PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLOHEXULOSONIC ACID?
L11          65 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12          43 SEA FILE=HCAPLUS ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13         703 SEA FILE=HCAPLUS ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11
                OR L12)
L14         407 SEA FILE=HCAPLUS ABB=ON  PLU=ON  KGA
L21       83872 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ASCORBIC ACID?
L22          69 SEA FILE=HCAPLUS ABB=ON  PLU=ON  ADENEX OR ALLERCORB OR
                ASCOLTIN OR ASCORVIT OR ASCORIN OR CANTAN OR CANTAXIN OR CECON
                OR CEKLIN OR CELIN OR CEVEX OR CEVIMAN OR CETEBE OR CECON
L43          98 SEA L6
L44         648 SEA (L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR L14)
L46       95929 SEA L5
L47      124495 SEA (L21 OR L22)
L48      137966 SEA (L46 OR L47)
L49         707 SEA (L43 OR L44)
L52           2 SEA FILE=REGISTRY ABB=ON  PLU=ON  L2 AND N/ELS
L58        5902 SEA FILE=HCAPLUS ABB=ON  PLU=ON  OCTYLAMINE?
L60        1787 SEA FILE=HCAPLUS ABB=ON  PLU=ON  DECYLAMINE?
L61       23813 SEA FILE=HCAPLUS ABB=ON  PLU=ON  TERTIARY AMINE?
L64         133 SEA L52
L65       27587 SEA (L61 OR L58 OR L60)
L66           5 SEA (L64 OR L65) AND L49 AND L48


=> dup rem 142,151,163,166
DUPLICATE IS NOT AVAILABLE IN 'CAOLD'.
ANSWERS FROM THESE FILES WILL BE CONSIDERED UNIQUE
FILE 'HCAPLUS' ENTERED AT 11:36:03 ON 02 APR 2007
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
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PROCESSING COMPLETED FOR L42
PROCESSING COMPLETED FOR L51
PROCESSING COMPLETED FOR L63
PROCESSING COMPLETED FOR L66
L86          48 DUP REM L42 L51 L63 L66 (12 DUPLICATES REMOVED)
                ANSWERS '1-31' FROM FILE HCAPLUS
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ANSWERS '32-33' FROM FILE BIOSIS
ANSWERS '34-48' FROM FILE WPIX

=> d ibib abs hitind retable l86 1-31;d ibib abs l86 32-33;d all abeq tech l86 34-48

L86 ANSWER 1 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 1
ACCESSION NUMBER: 2004:546516 HCAPLUS Full-text
DOCUMENT NUMBER: 141:87901
TITLE: Method for *extracting 2-keto-L-gulonic acid* from a polar, preferably aqueous solvent
INVENTOR(S): Domschke, Thomas; Merger, Martin; Deckert, Petra; Sauer, Friedrich
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 25 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004056841	A1	20040708	WO 2003-EP14192		20031213 <--
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AU 2003290036	A1	20040714	AU 2003-290036		20031213 <--
EP 1575968	A1	20050921	EP 2003-782392		20031213 <--
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JP 2006516148	T	20060622	JP 2005-502539		20031213 <--
US 2006149084	A1	20060706	US 2005-539960		20050617 <--
PRIORITY APPLN. INFO.:			DE 2002-10260085	A	20021219 <--
			DE 2003-10316268	A	20030408 <--
			WO 2003-EP14192	W	20031213 <--

AB The invention relates to a method for *extracting 2- keto-L-gulonic acids* from a polar, preferably aqueous solvent, preferably from a solvent which contains a mixture of *ascorbic acid* and *2-keto- L-gulonic acid*, by means of liquid-liquid *extraction* with the aid of an *extraction* agent which contains a tertiary *amine* and a polar organic diluent. Preferably, the inventive method also comprises steps for retro-*extracting* the *2-keto-L-gulonic acid* and for returning the *extraction* agent. The invention also relates to a method for producing *ascorbic acid* from *2- keto-L-gulonic acid* and for isolating the thus produced *ascorbic acid*.

IC ICM C07H007-027
ICS C07H001-06

CC 16-1 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 33

ST ketogulonic acid ***extn*** tertiary ***amine***

IT Alcohols, processes
Amides, processes
Aromatic compounds
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(as diluents; method for ***extracting 2-keto-L-gulonic acid*** from polar, preferably aqueous solvent)

IT Crystallization
Extraction
Lactonization
Polar solvents
Temperature
(method for ***extracting 2-keto-L-gulonic acid*** from polar, preferably aqueous solvent)

IT ***Amines***, processes
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(tertiary; method for ***extracting 2-keto-L-gulonic acid*** from polar, preferably aqueous solvent)

IT ***50-81-7, Ascorbic acid***, processes
112-30-1, 1-Decanol ***1070-01-5 1116-76-3***, Tri-octylamine ***7732-18-5***, Water, processes ***25339-17-7***, Isodecanol
RL: CPS (Chemical process); PEP (Physical, engineering or chemical process); PROC (Process)
(method for ***extracting 2-keto-L-gulonic acid*** from polar, preferably aqueous solvent)

IT ***526-98-7P, 2-keto-L-Gulonic ,acid***
RL: PUR (Purification or recovery); PREP (Preparation)
(method for ***extracting 2-keto-L-gulonic acid*** from polar, preferably aqueous solvent)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Basf Ag	1990			EP 0359042 A	HCAPLUS
Basf Ag	1990			EP 0359043 A	HCAPLUS

L86 ANSWER 2 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 2
ACCESSION NUMBER: 2004:60490 HCAPLUS Full-text
DOCUMENT NUMBER: 140:110411
TITLE: Dialkyl formamide in ***extraction*** of ***ascorbic acid*** from a polar solvent containing ***ascorbic acid*** and ***2-keto-L-gulonic acid***.
INVENTOR(S): Kaibel, Gerd; Merger, Martin; Domschke, Thomas; Deckert, Petra; Sauer, Friedrich
PATENT ASSIGNEE(S): BASF Aktiengesellschaft, Germany
SOURCE: PCT Int. Appl., 27 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2004007474	A1	20040122	WO 2003-EP7256	20030707 <--
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
DE 10231890	A1	20040205	DE 2002-10231890	20020712 <--
DE 10231890	B4	20040701		
CA 2492155	A1	20040122	CA 2003-2492155	20030707 <--
AU 2003246393	A1	20040202	AU 2003-246393	20030707 <--
EP 1523477	A1	20050420	EP 2003-763731	20030707 <--
EP 1523477	B1	20051102		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CN 1668607	A	20050914	CN 2003-816571	20030707 <--
AT 308534	T	20051115	AT 2003-763731	20030707 <--
ES 2250914	T3	20060416	ES 2003-3763731	20030707 <--
US 2005197504	A1	20050908	US 2004-515625	20041206 <--
BR 2004005871	A	20060905	BR 2004-5871	20041228 <--
PRIORITY APPLN. INFO.:			DE 2002-10231890 A	20020712 <--
			WO 2003-EP7256 W	20030707 <--

AB The invention relates to a method for the separation of ***ascorbic acid*** from a mixture containing ***ascorbic acid*** and ***2-keto-L-gulonic acid*** in a polar, preferably aqueous solvent, by means of liquid/liquid ***extraction*** using an amide. The method preferably also comprises steps for the back-***extraction*** of the ***ascorbic acid***, recycling of the ***extraction*** solvent and/or the back ***extraction*** solvent and for isolation of the ***ascorbic acid*** from the back ***extraction*** solvent. The invention further relates to a method for the production of ***ascorbic acid*** from ketogulonic acid and isolation of the ***ascorbic acid*** so produced.

IC ICM C07D307-62

CC 17-6 (Food and Feed Chemistry)

ST ***ascorbic acid*** purifn solvent ***extn*** dialkyl formamide

IT Crystallization
Polar solvents
Solvent ***extraction***
Vacuum
(dialkyl formamide in ***extraction*** of ***ascorbic acid*** from a polar solvent containing ***ascorbic acid*** and ***2-keto-L-gulonic acid***)

IT Amides, biological studies
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
(dialkyl formamide in ***extraction*** of ***ascorbic acid*** from a polar solvent containing ***ascorbic acid*** and ***2-keto-L-gulonic acid***)

IT Temperature effects, biological
(heat; dialkyl formamide in ***extraction*** of ***ascorbic acid*** from a polar solvent containing ***ascorbic***

acid and *2-keto-L-gulonic acid*)

IT 75-12-7D, Formamide, dialkyl derivs. 761-65-9, N,N-Dibutyl formamide
RL: FFD (Food or feed use); PEP (Physical, engineering or chemical process); PYP (Physical process); BIOL (Biological study); PROC (Process); USES (Uses)
(dialkyl formamide in *extraction* of *ascorbic acid* from a polar solvent containing *ascorbic acid* and *2-keto-L-gulonic acid*)

IT *50-81-7P*, *Ascorbic acid*, preparation
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); PREP (Preparation); PROC (Process)
(dialkyl formamide in *extraction* of *ascorbic acid* from a polar solvent containing *ascorbic acid* and *2-keto-L-gulonic acid*)

IT *526-98-7*, *2-keto-L-Gulonic acid*
RL: REM (Removal or disposal); PROC (Process)
(dialkyl formamide in *extraction* of *ascorbic acid* from a polar solvent containing *ascorbic acid* and *2-keto-L-gulonic acid*)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Boettcher, A	2001			US 6197977 B1	HCAPLUS
Fahrni, P	1991			US 5041563 A	HCAPLUS
Hoffmann La Roche	1936			CH 187933 A	HCAPLUS

L86 ANSWER 3 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 3
ACCESSION NUMBER: 2004:525926 HCAPLUS Full-text
DOCUMENT NUMBER: 141:71788
TITLE: Procedure for *extracting 2-keto-L-gulonic acid* from a polar solvent using a tertiary *amine*
INVENTOR(S): Domschke, Thomas; Merger, Martin; Deckert, Petra; Sauer, Friedrich
PATENT ASSIGNEE(S): BASF Ag, Germany
SOURCE: Ger. Offen., 10 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 2
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10260085	A1	20040701	DE 2002-10260085	20021219 <--
CA 2510026	A1	20040708	CA 2003-2510026	20031213 <--
WO 2004056841	A1	20040708	WO 2003-EP14192	20031213 <--

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2003290036	A1	20040714	AU 2003-290036		20031213 <--
EP 1575968	A1	20050921	EP 2003-782392		20031213 <--
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK					
CN 1729199	A	20060201	CN 2003-80106798		20031213 <--
JP 2006516148	T	20060622	JP 2005-502539		20031213 <--
US 2006149084	A1	20060706	US 2005-539960		20050617 <--
PRIORITY APPLN. INFO.:			DE 2002-10260085	A	20021219 <--
			DE 2003-10316268	A	20030408 <--
			WO 2003-EP14192	W	20031213 <--

AB A procedure for ***extracting 2-keto-L- gulonic acid*** (I) from a polar, preferably aqueous solvent, preferably from a solvent which contains a mixture of ***ascorbic acid*** and I is described by means of liquid-liquid ***extraction*** with an ***extractant*** which contains a tertiary-***amine*** (e.g., trioctylamine) ***extractant*** and a polar organic diluent. A procedure for the production of ***ascorbic acid*** from I via a lactonization reaction is described along with isolation of the manufactured ***ascorbic acid***.

IC ICM C07C059-215
ICS C07D307-62; B01D011-04
CC 33-2 (Carbohydrates)
Section cross-reference(s): 44, 48

ST ketogulonic acid ***extn***

IT Alcohols, uses
RL: NUU (Other use, unclassified); USES (Uses)
(aliphatic, solvents; in a procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT Lactonization
(in a procedure for converting ***extracted 2-keto-L-gulonic acid*** into ***ascorbic acid***)

IT Crystallization
(in a procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT ***Extraction***
(procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT Amides, uses
Aromatic hydrocarbons, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvents; in a procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT ***Amines***, reactions
RL: RGT (Reagent); RACT (Reactant or reagent)
(tertiary, ***extractants***; procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT ***1070-01-5 1116-76-3***, Trioctylamine
RL: RGT (Reagent); RACT (Reactant or reagent)
(***extractant***; procedure for ***extracting 2-keto-L-gulonic acid*** from a polar solvent using a tertiary ***amine***)

IT ***50-81-7P, Ascorbic acid***, preparation

RL: PNU (Preparation, unclassified); PUR (Purification or recovery); PREP (Preparation)
(procedure for converting *extracted 2-keto-L-gulonic acid* into *ascorbic acid*)

IT *526-98-7P*, *2-keto-L-Gulonic acid*
RL: PEP (Physical, engineering or chemical process); PUR (Purification or recovery); PYP (Physical process); RCT (Reactant); RGT (Reagent); PREP (Preparation); PROC (Process); RACT (Reactant or reagent)
(procedure for *extracting 2-keto-L-gulonic acid* from a polar solvent using a tertiary *amine*)

IT *7732-18-5*, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(solvent; in a procedure for *extracting 2-keto-L-gulonic acid* from a polar solvent using a tertiary *amine*)

IT *112-30-1*, 1-Decanol *25339-17-7*, Iso-decanol
RL: RGT (Reagent); RACT (Reactant or reagent)
(solvent; in a procedure for *extracting 2-keto-L-gulonic acid* from a polar solvent using a tertiary *amine*)

L86 ANSWER 4 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 4
ACCESSION NUMBER: 2001:676738 HCAPLUS Full-text
DOCUMENT NUMBER: 135:210327
TITLE: Process for the recovery of organic acids from aqueous solutions
INVENTOR(S): Collins, Nick Allen; Shelton, Mark Robert; Tindall, George William; Perri, Steven Thomas; O'meadhra, Ruairi Seosamh; Sink, Chester Wayne; Arumugam, Bhaskar K.; Hubbs, John Clark
PATENT ASSIGNEE(S): Eastman Chemical Company, USA
SOURCE: PCT Int. Appl., 69 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2001066508	A2	20010913	WO 2001-US7140		20010306 <--
WO 2001066508	A3	20020502			
W: BR, CN, JP					
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR					
US 6670505	B1	20031230	US 2000-519936		20000307 <--
EP 1261574	A2	20021204	EP 2001-918380		20010306 <--
EP 1261574	B1	20061102			
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR					
BR 2001009005	A	20030603	BR 2001-9005		20010306 <--
JP 2003525923	T	20030902	JP 2001-565329		20010306 <--
AT 344225	T	20061115	AT 2001-918380		20010306 <--
US 2002026077	A1	20020228	US 2001-921946		20010803 <--
PRIORITY APPLN. INFO.:			US 2000-519936	A	20000307 <--
			WO 2001-US7140	W	20010306 <--

AB A process for recovering a desired organic acid from solution includes providing an aqueous solution including at least one desired organic acid or its acid anion; adjusting the proton concentration in the aqueous solution to a desired level, with the desired proton concentration being selected, at least in part, by the amount of available protons needed to associate with the acid anions of the desired organic acid(s) to be recovered and/or acid anions that are weaker than the desired organic acids; and recovering at least a portion of the at least one desired organic acid from the aqueous phase. The desired proton concentration can be based on the amount of available protons being greater than, less than, or substantially equal to the amount of protons needed to associate with the anion of the desired organic acid(s) and acid anions that are weaker than the desired organic acid(s). Specific examples of suitable organic acids include but are not limited to ascorbic, succinic, tartaric, glyconic, gulonic, citric, lactic, malic, maleic, acetic, formic, gluconic, pyruvic, propionic, butyric, and itaconic acids and mixts. thereof. One embodiment of the invention relates to the recovery of ***2-keto- L-gulonic acid*** (KLG) from aqueous solns. such as fermentation baths.

IC ICM C07C051-43
ICS C07C059-347; C07C059-105; C07C059-265; C07C059-255; C07C059-19; C07C059-08; C07C057-145; C07C055-10; C07C053-02; C07C053-08; C07C053-122; C07C053-124; C07C059-245; C07C057-13; C07D307-62

CC 17-6 (Food and Feed Chemistry)
Section cross-reference(s): 16, 23

IT ***Amines***, biological studies
RL: FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(carboxylic acid salts; organic acids recovery from aqueous solns.)

IT Centrifugation
Extraction
Filtration
(organic acids recovery from aqueous solns.)

IT 50-21-5P, Lactic acid, biological studies ***50-81-7P***, vitamin C, biological studies 64-18-6P, Formic acid, biological studies 64-19-7P, Acetic acid, biological studies 77-92-9P, Citric acid, biological studies 79-09-4P, Propionic acid, biological studies 87-69-4P, Tartaric acid, biological studies 97-65-4P, Itaconic acid, biological studies 107-92-6P, Butyric acid, biological studies 110-15-6P, Succinic acid, biological studies 110-16-7P, Maleic acid, biological studies 127-17-3P, Pyruvic acid, biological studies 526-95-4P, Gluconic acid 6915-15-7P, Malic acid 7440-09-7DP, potassium, carboxylic acid salts, biological studies 7440-23-5DP, Sodium, carboxylic acid salts, biological studies 7440-70-2DP, Calcium, carboxylic acid salts, biological studies 7647-01-0P, Hydrochloric acid, biological studies 7664-38-2P, Phosphoric acid, biological studies 7664-93-9P, Sulfuric acid, biological studies 7697-37-2P, Nitric acid, biological studies 20246-53-1P, Gulonic acid
RL: FFD (Food or feed use); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); USES (Uses)
(organic acids recovery from aqueous solns.)

IT ***526-98-7P, 2-keto-L-Gulonic acid*** 669-90-9P, 2-keto-D-Gluconic acid
RL: PUR (Purification or recovery); PREP (Preparation)
(organic acids recovery from aqueous solns.)

L86 ANSWER 5 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 5
ACCESSION NUMBER: 1998:394331 HCAPLUS Full-text
DOCUMENT NUMBER: 129:54539
TITLE: Temperature sensitivity for ***extraction*** and recovery of ***ascorbic acid***
INVENTOR(S): Eyal, Aharon Meir

PATENT ASSIGNEE(S): Yissum Research Development Company of the Hebrew, Israel; A.E. Staley Manufacturing Co.; Eyal, Aharon Meir
SOURCE: PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9824777	A1	19980611	WO 1997-US22395	19971125 <--
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
CA 2271856	A1	19980611	CA 1997-2271856	19971125 <--
AU 9855947	A	19980629	AU 1998-55947	19971125 <--
EP 941220	A1	19990915	EP 1997-952304	19971125 <--
EP 941220	B1	20020130		
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
BR 9713307	A	20000321	BR 1997-13307	19971125 <--
JP 2001505581	T	20010424	JP 1998-525852	19971125 <--
AT 212624	T	20020215	AT 1997-952304	19971125 <--
ES 2168146	T3	20020601	ES 1997-952304	19971125 <--
MX 9905136	A	20000531	MX 1999-5136	19990601 <--
US 6169187	B1	20010102	US 1999-319141	19990809 <--

PRIORITY APPLN. INFO.: IL 1996-119732 A 19961201 <--
WO 1997-US22395 W 19971125 <--

AB The invention provides a process for the recovery of ***ascorbic acid*** from a feed containing at least one precursor of ***ascorbic acid*** comprising converting said precursor into at least one product, said at least one product being ***ascorbic acid*** in an organic ***extractant*** composition, said organic ***extractant*** composition comprising at least one secondary or tertiary alkyl ***amine*** in which the aggregate number of carbon atoms is at least 20, as a primary ***extractant***, and a polar ***extraction*** enhancer compound; wherein said ***extractant*** composition comprises at least 2 mol of said polar ***extraction*** enhancer compound per one mole of primary ***extractant*** ; and subjecting said ***ascorbic acid***-containing organic ***extractant*** composition to a stripping operation with aqueous solution at a temperature of at least 20 °C higher than the temperature at which said conversion is carried out; whereby there is obtained an aqueous solution of ***ascorbic acid*** in which the concentration of ***ascorbic acid*** is higher than 5 %.

IC ICM C07D307-62
CC 33-8 (Carbohydrates)
Section cross-reference(s): 17
ST feed soln ***extn ascorbic acid;***
ascorbic acid extn recovery temp sensitivity
IT ***Extraction***
Feed
(temperature sensitivity for ***extraction*** and recovery of ***ascorbic acid***)
IT Acids, preparation
RL: PUR (Purification or recovery); PREP (Preparation)
(temperature sensitivity for ***extraction*** and recovery of ***ascorbic***

acid)

IT 50-21-5P, Lactic acid, preparation ***50-81-7P, Ascorbic acid***, preparation 64-19-7P, Acetic acid, preparation 77-92-9P, Citric acid, preparation 79-09-4P, Propionic acid, preparation 79-31-2P, IsoButyric acid 87-69-4P, Tartaric acid, preparation 107-92-6P, Butyric acid, preparation 110-15-6P, Succinic acid, preparation 110-16-7P, Maleic acid, preparation 110-94-1P, Glutaric acid 141-82-2P, Malonic acid, preparation 328-50-7P 526-95-4P, Gluconic acid 6915-15-7P, Malic acid
RL: PUR (Purification or recovery); PREP (Preparation)
(temperature sensitivity for ***extraction*** and recovery of ***ascorbic acid***)

IT ***526-98-7P, 2-keto-L-Gulonic acid***
RL: PUR (Purification or recovery); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
(temperature sensitivity for ***extraction*** and recovery of ***ascorbic acid***)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Fahrni, P	1991			US 5041563 A	HCAPLUS
Fujiwara, Y	1988			US 4778902 A	HCAPLUS
Imi Tami Inst For Resea	1976			GB 1426018 A	HCAPLUS
Yissum Res Dev Co	1996			WO 9638433 A	HCAPLUS

L86 ANSWER 6 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 6
ACCESSION NUMBER: 1990:404650 HCAPLUS Full-text
DOCUMENT NUMBER: 113:4650
TITLE: Separation of ***2-keto-L-gulonic acid*** from a fermentation liquor
INVENTOR(S): Barthole, Jean Pierre; Filippi, Jean; Jaeger-Seddik, Aurelia; Le Fur, Isidore; Pommier, Jean Yves
PATENT ASSIGNEE(S): Rhone-Poulenc Sante, Fr.
SOURCE: Eur. Pat. Appl., 4 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: French
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
EP 359645	A1	19900321	EP 1989-402467	19890911	<--
EP 359645	B1	19950111			
R: AT, BE, CH, DE, ES, FR, GB, GR, IT, LI, LU, NL, SE					
FR 2636343	A1	19900316	FR 1988-11902	19880913	<--
FR 2636343	B1	19941125			
US 4990441	A	19910205	US 1989-405126	19890911	<--
CA 1331017	C	19940726	CA 1989-610976	19890911	<--
ES 2066010	T3	19950301	ES 1989-402467	19890911	<--
DK 8904498	A	19900314	DK 1989-4498	19890912	<--
DK 173272	B1	20000605			
HU 51337	A2	19900428	HU 1989-4820	19890912	<--
HU 202282	B	19910228			
JP 02150286	A	19900608	JP 1989-234813	19890912	<--
JP 3013995	B2	20000228			
SU 1774951	A3	19921107	SU 1989-4614906	19890912	<--

KR 142084 B1 19980615 KR 1989-13268 19890912 <--
PRIORITY APPLN. INFO.: FR 1988-11902 A 19880913 <--

AB *2-Keto-L-gulonic acid* (I) is purified from fermentation broth by ***extraction*** from a demineralized solution with an organic solvent containing an aliphatic ***amine*** and reextn. with a strong acid. Thus, fermentation broth was clarified and concentrated by any of several methods, Ca was precipitated as CaSO4 by addition of H2SO4, and the cations and anions were removed by ion exchangers. One liter of treated broth containing 80 g I was mixed with 1 L of a solution of 260 g Adogen 83 in kerosene for 30 min at 50°. The I ***extracted*** into the organic phase was quant. reextd. by 690 mL 1N HNO3. The solution concentrated to dryness contained 89% I monohydrate.

IC ICM C12P007-60
CC 16-2 (Fermentation and Bioindustrial Chemistry)
ST ketogulonate ***extn*** fermn
IT ***526-98-7, 2-Keto-L-Gulonic acid***
RL: PROC (Process)
(separation of, from fermentation broth)

L86 ANSWER 7 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN DUPLICATE 7
ACCESSION NUMBER: 1981:52833 HCAPLUS Full-text
DOCUMENT NUMBER: 94:52833
TITLE: ***Extraction*** of diacetone-***2-keto-L-gulonic acid*** from the mother liquor in ***ascorbic acid*** production
AUTHOR(S): Khachaturov, S. L.; Maslov, A. E.; Shukhat, M. A.; Beregovykh, V. V.; Pal'chik, K. B.; Terent'ev, V. V.; Vinogradova, G. V.
CORPORATE SOURCE: USSR
SOURCE: Khimiko-Farmatsevticheskii Zhurnal (***1980***), 14(11), 106-8
CODEN: KHFZAN; ISSN: 0023-1134
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB ***Extraction*** of the diacetone-***2-keto-L- gulonic acid*** [27708-72-1] from the mother liquor of ***ascorbic acid*** [***50-81-7***] manufacture on a thermostated adsorber containing a stationary layer of activated C AU-alkaline was 50-60%, but with AU-acid the ***extraction*** was 90-98%. The optimum temperature for the adsorption by the activated charcoal AU-acid was 0-6° and the optimum volume rate <4.5/h. Me2CO was used for the regeneration of the gradient. Following regeneration, the adsorption activity of AU was practically unchanged. The process could be made automatic by initial adsorption of the desired compound on the stationary AU layer, with subsequent regeneration using Me2CO.

CC 63-6 (Pharmaceuticals)
IT Adsorption
(of gulonic acid derivative, on activated charcoal, in ***ascorbic acid*** manufacture)
IT Charcoal
RL: BIOL (Biological study)
(activated, for gulonic acid derivative ***extraction*** in ascorbate manufacture)
IT 18467-77-1
RL: PROC (Process)
(***extraction*** of, in ascorbate manufacture, by charcoal absorption)
IT ***50-81-7P***, biological studies
RL: BIOL (Biological study); PREP (Preparation)
(manufacture of, gulonic acid derivative removal from, by charcoal ***extn***.)

L86 ANSWER 8 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2004:57306 HCAPLUS Full-text
DOCUMENT NUMBER: 140:128264
TITLE: Preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol (-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-gulonic acid* salt as a means of resolving 3-methylamino-1-(2-thienyl)-1-propanol.
INVENTOR(S): Boehm, Andreas; Sorger, Klas
PATENT ASSIGNEE(S): Consortium fuer Elektrochemische Industrie G.m.b.H., Germany
SOURCE: Ger., 9 pp.
CODEN: GWXXAW
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 10237246	B3	20040122	DE 2002-10237246	20020814

PRIORITY APPLN. INFO.: DE 2002-10237246 20020814

AB (S)-3-methylamino-1-(2-thienyl)-1-propanol was prepared via fractional crystallization of diastereomeric 3-methylamino-1-(2-thienyl)-1-propanol in the presence of (-)-diacetone-*2-keto-L- gulonic acid* and subsequent liberation of the free base. Thus, racemic 3-methylamino-1-(2-thienyl)-1-propanol in MeOCMe3 at 50° was treated with a 50° solution of (-)-diacetone-*2 -keto-L-gulonic acid* in EtOH followed by cooling to room temperature, reflux for 3 h, stirring to room temperature over 3 h, and stirring at room temperature for 2 h to give 34.1% (S)-3-methylamino-1-(2-thienyl)-1-propanol (-)-2,3,4,6-di-O-isopropyliden- *2-keto-L-gulonic acid* salt. This in H2O was treated with 2 equivalent aqueous 6N NaOH followed by *extraction* with EtOAc to give 97% (S)-3-methylamino-1-(2-thienyl)-1- propanol in 98.4% enantiomeric excess.

IC ICM C07D493-14
ICS C07D333-20
CC 27-8 (Heterocyclic Compounds (One Hetero Atom))
Section cross-reference(s): 33
IT Resolution (separation)
(preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol (-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-gulonic acid* salt as a means of resolving 3-methylamino-1-(2-thienyl)-1-propanol)
IT 60-29-7, Diethyl ether, uses 64-17-5, Ethanol, uses 67-56-1, Methanol, uses 67-63-0, Isopropanol, uses 67-64-1, Acetone, uses 67-66-3, Chloroform, uses 71-23-8, n-Propanol, uses 71-36-3, n-Butanol, uses 75-05-8, Acetonitrile, uses 75-09-2, Methylene chloride, uses 78-83-1, Isobutanol, uses 108-88-3, Toluene, uses 141-78-6, Ethyl acetate, uses 1634-04-4, Methyl tert-butyl ether *7732-18-5*, Water, uses
RL: NUU (Other use, unclassified); USES (Uses)
(preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol (-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-gulonic acid* salt as a means of resolving 3-methylamino-1-(2-thienyl)-1-propanol)
IT 116539-55-0P, (S)-3-Methylamino-1-(2-thienyl)-1-propanol
RL: PUR (Purification or recovery); SPN (Synthetic preparation); PREP (Preparation)
(preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol (-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-*

gulonic acid salt as a means of resolving
3-methylamino-1-(2-thienyl)-1-propanol)

IT 18467-77-1, Diacetone-*2-keto-L-gulonic acid* 116539-56-1, 3-Methylamino-1-(2-thienyl)-1-propanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol
(-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-gulonic acid* salt as a means of resolving
3-methylamino-1-(2-thienyl)-1-propanol)

IT 569687-76-9P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation of (S)-3-methylamino-1-(2-thienyl)-1-propanol
(-)-2,3,4,6-di-O-isopropyliden-*2-keto-L-gulonic acid* salt as a means of resolving
3-methylamino-1-(2-thienyl)-1-propanol)

RETABLE

Referenced Author (RAU)	Year (RPY)	VOL (RVL)	PG (RPG)	Referenced Work (RWK)	Referenced File
Anon				EP 0650965 A1	HCAPLUS
Anon	2000	25	S907	Drugs Fut	
Anon	1988	6	S514	LC-GC	

L86 ANSWER 9 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:89809 HCAPLUS Full-text
DOCUMENT NUMBER: 136:139844
TITLE: Compositions useful for regulating hair growth containing metal complexes of oxidized carbohydrates
INVENTOR(S): Gardlik, John Michael; Severynse-Stevens, Diana; Comstock, Bryan Gabriel
PATENT ASSIGNEE(S): The Procter & Gamble Company, USA
SOURCE: PCT Int. Appl., 47 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002007700	A2	20020131	WO 2001-US23425	20010725 <--
WO 2002007700	A8	20031030		
WO 2002007700	A3	20020829		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2002119174	A1	20020829	US 2001-909440	20010719 <--
PRIORITY APPLN. INFO.:			US 2000-220756P	P 20000726 <--

AB A stable cosmetic, dermatol., or pharmaceutical composition comprising: (a) about 0.001-99.9%, by weight, of at least one metal complex of an oxidized carbohydrate, wherein the metal complex of an oxidized carbohydrate is neither

zinc gluconate, manganese gluconate, nor lithium gluconate; and (b) about 0.1-99.999%, by weight, of a vehicle, wherein the vehicle comprises at least about 5%, by weight of the composition, of propylene glycol. The composition is administered orally, parenterally or topically. For example, a topical composition was prepared containing zinc lactobionate 5.0%, zinc gluconate 3.0%, minoxidil 2.5%, propylene glycol 8.0%, dimethylisosorbide 19.0%, and ethanol and minors up to 100%.

IC ICM A61K007-48
ICS A61P017-00; A61K031-00; A61K031-70

CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, 2, 62

IT Ginkgo biloba
Hedera
(*exts.*; compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

IT 96-82-2D, Lactobionic acid, copper or zinc complex 96-82-2D, Lactobionic acid, metal complexes 526-95-4D, Gluconic acid, metal complexes ***526-98-7D, L-xylo-2-Hexulosonic acid***, metal complexes 534-41-8D, Cellobionic acid, metal complexes 534-42-9D, Maltobionic acid, copper complex 534-42-9D, Maltobionic acid, metal complexes 534-74-7D, Isomaltobionic acid, metal complexes 669-90-9D, D-arabino-2-Hexulosonic acid, metal complexes 1398-61-4D, Chitin, metal complexes 3956-93-2D, Idonic acid, metal complexes 6906-37-2D, Mannonic acid, metal complexes 7439-89-6D, Iron, complexes with oxidized carbohydrates 7439-93-2D, Lithium, complexes with oxidized carbohydrates 7439-95-4D, Magnesium, complexes with oxidized carbohydrates 7439-98-7D, Molybdenum, complexes with oxidized carbohydrates 7440-02-0D, Nickel, complexes with oxidized carbohydrates 7440-05-3D, Palladium, complexes with oxidized carbohydrates 7440-06-4D, Platinum, complexes with oxidized carbohydrates 7440-22-4D, Silver, complexes with oxidized carbohydrates 7440-23-5D, Sodium, complexes with oxidized carbohydrates 7440-31-5D, Tin, complexes with oxidized carbohydrates 7440-47-3D, Chromium, complexes with oxidized carbohydrates 7440-48-4D, Cobalt, complexes with oxidized carbohydrates 7440-50-8D, Copper, complexes with oxidized carbohydrates 7440-57-5D, Gold, complexes with oxidized carbohydrates 7440-66-6D, Zinc, complexes with oxidized carbohydrates 7440-70-2D, Calcium, complexes with oxidized carbohydrates 9000-01-5D, Gum arabic, metal complexes 9000-30-0D, Gum guar, oxidized, metal complexes 9000-36-6D, Karaya gum, metal complexes 9000-40-2D, Locust bean gum, oxidized, metal complexes 9002-18-0D, Agar, oxidized, metal complexes 9004-34-6D, Cellulose, oxidized, metal complexes 9005-38-3D, Algin, oxidized, metal complexes 9019-49-2, Zinc alginate 11138-66-2D, Xanthan gum, metal complexes 13382-27-9D, Galactonic acid, metal complexes 13752-83-5D, Arabinonic acid, metal complexes 16722-49-9D, D-lyxo-2-Hexulosonic acid, metal complexes 17812-24-7D, Ribonic acid, metal complexes 17828-56-7D, Xylonic acid, metal complexes 20246-52-0D, Talonic acid, metal complexes 20246-53-1D, Gulonic acid, metal complexes 23351-51-1D, Glucoheptonic acid, metal complexes 24871-35-0D, Altronic acid, metal complexes 27297-39-8, Sodium lactobionate 28223-40-7D, Lyxonic acid, metal complexes 28223-42-9D, Allonic acid, metal complexes 30923-20-7D, Riburonic acid, metal complexes 30923-21-8D, Xyluronic acid, metal complexes 60816-70-8, Lithium gluconate 71010-52-1D, Gellan gum, oxidized, metal complexes 86259-36-1 88582-85-8 214975-75-4D, D-ribo-2-Hexulosonic acid, metal complexes
RL: COS (Cosmetic use); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

IT 50-23-7, Hydrocortisone 57-41-0, Phenytoin 57-50-1D, Sucrose, allyl ethers, polymers 57-55-6, Propylene glycol, biological studies 57-83-0, Progesterone, biological studies 59-67-6, Nicotinic acid, biological studies 60-00-4, Ethylenediaminetetraacetic acid, biological studies 64-17-5, Ethanol, biological studies 67-63-0, Propan-2-ol, biological studies 67-68-5, Dimethylsulfoxide, biological studies 71-23-8, Propan-1-ol, biological studies 77-52-1, Ursolic acid 77-99-6D, Trimethylolpropane, C5-10 alkyl triesters 94-36-0, Benzoyl peroxide, biological studies 96-82-2, Lactobionic acid 98-92-0, Niacinamide 101-20-2, Triclocarban 111-60-4, Ethylene glycol monostearate 111-87-5, Octanol, biological studies 119-36-8, Methyl salicylate 123-99-9, Azelaic acid, biological studies 139-44-6, Trihydroxystearin 142-71-2, Cupric acetate 364-98-7, Diazoxide 427-51-0, Cyproterone acetate 464-92-6, Asiatic acid 472-15-1, Betulinic acid 499-44-5, Hinokitiol 508-02-1, Oleanolic acid 526-95-4, Gluconic acid 534-42-9, Maltobionic acid 540-10-3, Cetyl palmitate 557-34-6, Zinc acetate 627-83-8, Ethylene glycol distearate 1314-13-2, Zinc oxide, biological studies 1317-38-0, Cupric oxide, biological studies 2778-96-3, Stearyl stearate 3380-34-5, Triclosan 4373-41-5, Crataegolic acid 4468-02-4, Zinc gluconate 4481-62-3, Betulonic acid 4759-48-2, Isotretinoin 6485-39-8, Manganese gluconate 6893-02-3, Triiodothyronine 6938-94-9, Diisopropyl adipate 7447-39-4, Cupric chloride, biological studies 7704-34-9, Sulfur, biological studies 7733-02-0, Zinc sulfate 7758-98-7, Cupric sulfate, biological studies 9000-30-0, Guar gum 9002-89-5, Polyvinyl alcohol 9003-39-8, Polyvinyl pyrrolidone 9004-58-4, Hydroxyethyl ethyl cellulose 9004-62-0, Hydroxyethyl cellulose 9004-64-2, Hydroxypropyl cellulose 9004-65-3, Hydroxypropyl methyl cellulose 9004-67-5, Methyl cellulose 9005-12-3, Poly[oxy(methylphenylsilylene)] 9005-25-8, Starch, biological studies 9016-00-6, Polydimethylsiloxane 9041-56-9, Hydroxybutyl methyl cellulose 10118-90-8, Minocyclin 11138-66-2, Xanthan gum 13463-41-7, Zinc pyrithione 13822-09-8, Benzyl peroxide 25189-70-2, 1-Decene homopolymer 25322-68-3, Polyethylene glycol 28323-47-9, Polydiethylsiloxane 31230-04-3, Polymethylphenylsiloxane 31900-57-9, Polydimethylsiloxane 34157-83-0, Celastrol 37309-58-3, Polydecene 38083-17-9, Climbazole 38304-91-5, Minoxidil 39421-75-5, Hydroxypropyl guar gum 55079-83-9, Acitretin 56267-41-5, Polydiethylsiloxane 65277-42-1, Ketoconazole 65497-29-2 73671-86-0, 17β-N,N-Diethylcarbamoyl-4-methyl-4-aza-5α-androstan-3-one 79217-60-0, Cyclosporin 81859-24-7, Polyquaternium 10 84625-61-6, Itraconazole 94470-67-4, Cromakalim 95144-24-4, Polyquaternium 16 98319-26-7, Finasteride 98616-25-2, Polyquaternium 24 118292-40-3, Tazarotene 120210-48-2, Tenidap 130209-82-4, Latanoprost 164656-23-9, Dutasteride 304675-82-9, ***Aminexil***
RL: COS (Cosmetic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

L86 ANSWER 10 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2002:89795 HCAPLUS Full-text
DOCUMENT NUMBER: 136:139843
TITLE: Method of regulating hair growth using metal complexes of oxidized carbohydrates
INVENTOR(S): Gardlik, John Michael; Severynse-Stevens, Diana; Comstock, Bryan Gabriel
PATENT ASSIGNEE(S): The Procter & Gamble Company, USA
SOURCE: PCT Int. Appl., 46 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent

LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002007685	A2	20020131	WO 2001-US23424	20010725 <--
WO 2002007685	A8	20031030		
WO 2002007685	A3	20020829		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2002035070	A1	20020321	US 2001-909441		20010719 <--
AU 2001080779	A5	20020205	AU 2001-80779		20010725 <--
PRIORITY APPLN. INFO.:			US 2000-220755P	P	20000726 <--
			WO 2001-US23424	W	20010725 <--

AB A method for regulating the growth of hair comprising administering to a mammal, an effective amount of a composition comprising: (a) about 0.001-99.9%, by weight, of at least one metal complex of an oxidized carbohydrate, wherein the metal complex of an oxidized carbohydrate is neither zinc gluconate nor manganese gluconate; and (b) about 0.1-99.999%, by weight, of a vehicle. The composition is administered orally, parenterally, or topically. For example, a topical composition contained zinc lactobionate 5.0%, zinc gluconate 1.0%, zinc pyrithione 1.0%, Tween 20 1.0%, propylene glycol 10.0%, dimethylisosorbide 18.0%, EtOH 30.0%, and water and minors up to 100%. Also, tablets were prepared containing zinc lactobionate 100 mg, Crospovidone 15 mg, lactose 200 mg, microcryst. cellulose 80 mg, and magnesium stearate 5 mg.

IC ICM A61K007-06
ICS A61K031-70; A61P017-14

CC 63-6 (Pharmaceuticals)
Section cross-reference(s): 1, 2, 62

IT Ginkgo biloba
Hedera
(*exts.*; compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

IT 96-82-2D, Lactobionic acid, copper or zinc complex 96-82-2D, Lactobionic acid, metal complexes 526-95-4D, Gluconic acid, metal complexes *526-98-7D, L-xylo-2-Hexulosonic acid*, metal complexes 534-41-8D, Cellobionic acid, metal complexes 534-42-9D, Maltobionic acid, copper complex 534-42-9D, Maltobionic acid, metal complexes 534-74-7D, Isomaltobionic acid, metal complexes 669-90-9D, D-arabino-2-Hexulosonic acid, metal complexes 1398-61-4D, Chitin, metal complexes 3956-93-2D, Idonic acid, metal complexes 6906-37-2D, Mannonic acid, metal complexes 7439-89-6D, Iron, complexes with oxidized carbohydrates 7439-93-2D, Lithium, complexes with oxidized carbohydrates 7439-95-4D, Magnesium, complexes with oxidized carbohydrates 7439-98-7D, Molybdenum, complexes with oxidized carbohydrates 7440-02-0D, Nickel, complexes with oxidized carbohydrates 7440-05-3D, Palladium, complexes with oxidized carbohydrates 7440-06-4D, Platinum, complexes with oxidized carbohydrates 7440-22-4D, Silver, complexes with oxidized carbohydrates 7440-23-5D, Sodium, complexes with oxidized carbohydrates 7440-31-5D, Tin, complexes with oxidized carbohydrates 7440-47-3D, Chromium,

complexes with oxidized carbohydrates 7440-48-4D, Cobalt, complexes with oxidized carbohydrates 7440-50-8D, Copper, complexes with oxidized carbohydrates 7440-57-5D, Gold, complexes with oxidized carbohydrates 7440-66-6D, Zinc, complexes with oxidized carbohydrates 7440-70-2D, Calcium, complexes with oxidized carbohydrates 9000-01-5D, Gum arabic, metal complexes 9000-30-0D, Gum guar, oxidized, metal complexes 9000-36-6D, Gum karaya, metal complexes 9000-40-2D, Locust bean gum, oxidized, metal complexes 9002-18-0D, Agar, oxidized, metal complexes 9004-34-6D, Cellulose, oxidized, metal complexes 9005-38-3D, Algin, oxidized, metal complexes 9019-49-2, Zinc alginate 11138-66-2D, Xanthan gum, metal complexes 13382-27-9D, Galactonic acid, metal complexes 13752-83-5D, Arabinonic acid, metal complexes 16722-49-9D, D-lyxo-2-Hexulosonic acid, metal complexes 17812-24-7D, Ribonic acid, metal complexes 17828-56-7D, Xylonic acid, metal complexes 20246-52-0D, Talonic acid, metal complexes 20246-53-1D, Gulonic acid, metal complexes 23351-51-1D, Glucoheptonic acid, metal complexes 24871-35-0D, Altronic acid, metal complexes 27297-39-8, Sodium lactobionate 28223-40-7D, Lyxonic acid, metal complexes 28223-42-9D, Allonic acid, metal complexes 30923-20-7D, Riburonic acid, metal complexes 30923-21-8D, Xyluronic acid, metal complexes 60816-70-8, Lithium gluconate 71010-52-1D, Gellan gum, oxidized, metal complexes 86259-36-1 88582-85-8 214975-75-4D, D-ribo-2-Hexulosonic acid, metal complexes
RL: COS (Cosmetic use); PAC (Pharmacological activity); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

IT 50-23-7, Hydrocortisone 57-41-0, Phenytoin 57-50-1D, Sucrose, allyl ethers, polymerized 57-55-6, Propylene glycol, biological studies 57-83-0, Progesterone, biological studies 59-67-6, Nicotinic acid, biological studies 60-00-4, Ethylenediaminetetraacetic acid, biological studies 64-17-5, Ethanol, biological studies 67-63-0, Propan-2-ol, biological studies 67-68-5, Dimethylsulfoxide, biological studies 71-23-8, Propan-1-ol, biological studies 77-52-1, Ursolic acid 77-99-6D, Trimethylolpropane, C8-10 alkyl triesters 94-36-0, Benzoyl peroxide, biological studies 96-82-2, Lactobionic acid 98-92-0, Niacinamide 101-20-2, Triclocarban 111-60-4, Ethylene glycol monostearate 111-87-5, Octanol, biological studies 119-36-8, Methyl salicylate 123-99-9, Azelaic acid, biological studies 139-44-6, Trihydroxystearin 142-71-2, Cupric acetate 364-98-7, Diazoxide 427-51-0, Cyproterone acetate 464-92-6, Asiatic acid 472-15-1, Betulinic acid 499-44-5, Hinokitiol 508-02-1, Oleanolic acid 526-95-4, Gluconic acid 534-42-9, Maltobionic acid 540-10-3, Cetyl palmitate 557-34-6, Zinc acetate 627-83-8, Ethylene glycol distearate 1314-13-2, Zinc oxide, biological studies 1317-38-0, Cupric oxide, biological studies 2778-96-3, Stearyl stearate 3380-34-5, Triclosan 4373-41-5, Crataegolic acid 4468-02-4, Zinc gluconate 4481-62-3, Betulonic acid 4759-48-2, Isotretinoin 6485-39-8, Manganese gluconate 6893-02-3, Triiodothyronine 6938-94-9, Diisopropyl adipate 7447-39-4, Cupric chloride, biological studies 7704-34-9, Sulfur, biological studies 7733-02-0, Zinc sulfate 7758-98-7, Cupric sulfate, biological studies 9000-30-0, Guar gum 9002-89-5, Polyvinyl alcohol 9003-39-8, Polyvinyl pyrrolidone 9004-58-4, Hydroxyethyl ethyl cellulose 9004-64-2, Hydroxypropyl cellulose 9004-65-3, Hydroxypropyl methylcellulose 9004-67-5, Methyl cellulose 9005-12-3, Poly[oxy(methylphenylsilylene)] 9005-25-8, Starch, biological studies 9006-65-9, Dimethicone 9016-00-6, Polydimethylsiloxane 9041-56-9, Hydroxybutyl methyl cellulose 10118-90-8, Minocyclin 11138-66-2, Xanthan gum 13463-41-7, Zinc pyrithione 13822-09-8, Benzyl peroxide 25189-70-2, 1-Decene homopolymer 25322-68-3, Polyethylene glycol 28323-47-9,

Polydiethylsiloxane 31230-04-3, Polymethylphenylsiloxane 31900-57-9, Polydimethylsiloxane 34157-83-0, Celastrol 37309-58-3, Polydecene 38083-17-9, Climbazole 38304-91-5, Minoxidil 39421-75-5, Hydroxypropyl guar gum 55079-83-9, Acitretin 56093-45-9, Selenium sulfide 56267-41-5, Polydiethylsiloxane 65277-42-1, Ketoconazole 65497-29-2 73671-86-0, 17β-N,N-Diethylcarbamoyl-4-methyl-4-aza-5α-androstan-3-one 79217-60-0, Cyclosporin 81859-24-7, Polyquaternium 10 84625-61-6, Itraconazole 94470-67-4, Cromakalim 95144-24-4, Polyquaternium 16 98319-26-7, Finasteride 98616-25-2, Polyquaternium 24 118292-40-3, Tazarotene 120210-48-2, Tenidap 130209-82-4, Latanoprost 164656-23-9, Dutasteride 304675-82-9, ***Aminexil***
RL: COS (Cosmetic use); THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(compns. containing metal complexes of oxidized carbohydrates for regulating hair growth)

L86 ANSWER 11 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2003:311039 HCAPLUS Full-text
DOCUMENT NUMBER: 139:116303
TITLE: Effect of Bacillus cereus on Gluconobacter oxydans in vitamin C fermentation process
AUTHOR(S): Jiao, Yinghui; Zhang, Weicai; Xie, Li; Yuan, Hongjie; Chen, Mengxia
CORPORATE SOURCE: Institute of Biotechnology, Beijing, 100071, Peop. Rep. China
SOURCE: Weishengwuxue Tongbao (***2002***), 29(5), 35-38
CODEN: WSWPDI; ISSN: 0253-2654
PUBLISHER: Kexue Chubanshe
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB The effects of Bacillus cereus on the growth of Gluconobacter oxydans and ***2-keto-L-gulonic acid*** (2- ***KGA***) formation during two-step fermentation process of vitamin C were investigated. It is shown that wider co-culture conditions of the two strains, comparing to single strain fermentation with G. oxydans, as much as about 5 times of cells of G. oxydans, 2-3 times 2-***KGA*** and 2-3 times of bioconversion activities were formed, suggesting that the improved 2-***KGA*** formation may be caused only by stimulation of B. cereus on the growth of G. oxydans. The results of bioconversion with resting cells of G. oxydans also showed that neither the culture supernatant nor the cell-free ***exts***. indicated any obvious clue of direct elect on the biotransformation activity.
CC 16-2 (Fermentation and Bioindustrial Chemistry)
IT ***50-81-7P***, Vitamin C, preparation
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(effect of Bacillus cereus on Gluconobacter oxydans in vitamin C fermentation process)
IT ***526-98-7P***, ***2-keto-L-Gulonic acid***
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(effect of Bacillus cereus on Gluconobacter oxydans in vitamin C fermentation process)

L86 ANSWER 12 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 2001:645032 HCAPLUS Full-text
DOCUMENT NUMBER: 136:133631
TITLE: Studies on ***2-keto-L-gulonic acid*** purification by

ultrafiltration
AUTHOR(S): Li, Chun-yan; Fang, Fu-lin; Xia, Hai-ping; Ding, Ma-tai; Lan, Wei-guang
CORPORATE SOURCE: Dept. of Materials Science, Xiamen Univ., Xiamen, 361005, Peop. Rep. China
SOURCE: Xiamen Daxue Xuebao, Ziran Kexueban (*2001*), 40(4), 903-907
CODEN: HMHHAF; ISSN: 0438-0479
PUBLISHER: Xiamen Daxue
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB In this paper, a new ultrafiltration pilot Sun-flo membrane separation system was used to ***extract*** gulonic acid from vitamin C fermentation liquor that was not pretreated. The quality of filtrate was high and the filtering yield was as high as 99.24%. The average flux was 99.49 LMH and the flux declined very slowly during the purification of gulonic acid by Sun-flo membrane separation system. The results showed that the Sun-flo membrane separation system could overcome the phenomenon of membrane jam seriously. The processes could be simplified greatly.
CC 16-1 (Fermentation and Bioindustrial Chemistry)
IT Ultrafilters
(Sun-flo; studies on ***2-keto-L-gulonic acid*** purification by ultrafiltration)
IT Fermentation
Ultrafiltration
(studies on ***2-keto-L-gulonic acid*** purification by ultrafiltration)
IT ***50-81-7***, Vitamin C, biological studies
RL: BSU (Biological study, unclassified); BIOL (Biological study)
(studies on ***2-keto-L-gulonic acid*** purification by ultrafiltration)
IT ***526-98-7P***, ***2-keto-L-Gulonic acid***
RL: PUR (Purification or recovery); PREP (Preparation)
(studies on ***2-keto-L-gulonic acid*** purification by ultrafiltration)

L86 ANSWER 13 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1997:581049 HCAPLUS Full-text
DOCUMENT NUMBER: 127:253025
TITLE: Application of new flocculant in vitamin C culture broth pretreatment
AUTHOR(S): Ji, Guanghui; Yan, Fanglong; Miao, Chun; Wang, Fengying
CORPORATE SOURCE: Gen. Fac. Northeast Pharmaceutics, Shenyang, 110026, Peop. Rep. China
SOURCE: Shenyang Yaoke Daxue Xuebao (*1997*), 14(2), 88-90
CODEN: SYDXFF; ISSN: 1006-2858
PUBLISHER: Shenyang Yaoke Daxue Xuebao Bianjibu
DOCUMENT TYPE: Journal
LANGUAGE: Chinese
AB When vitamin C (Vc) culture was pretreated by a new flocculant A809 before culture, the filtrate quality of ***2-keto-L- gulonic acid*** was improved, and the yield of the first ***extraction*** was 5.2% higher than that by the original method. The total yield of Vc was 2.5% higher than that by the original method.
CC 63-3 (Pharmaceuticals)
IT ***50-81-7P***, Vitamin C, biological studies
RL: BMF (Bioindustrial manufacture); BPR (Biological process); BSU

(Biological study, unclassified); BIOL (Biological study); PREP (Preparation); PROC (Process)
(flocculant in vitamin C culture broth pretreatment)

IT ***526-98-7P, 2-keto-L-Gulonic acid***
RL: BMF (Bioindustrial manufacture); FMU (Formation, unclassified); BIOL (Biological study); FORM (Formation, nonpreparative); PREP (Preparation)
(flocculant in vitamin C culture broth pretreatment)

L86 ANSWER 14 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1995:994272 HCAPLUS Full-text
DOCUMENT NUMBER: 124:56570
TITLE: ***Extraction*** technology for gulonic acid
INVENTOR(S): Cha, Zunxue
PATENT ASSIGNEE(S): Shenyang College of Pharmacy, Peop. Rep. China
SOURCE: Faming Zhuanli Shenqing Gongkai Shuomingshu, 5 pp.
CODEN: CNXXEV
DOCUMENT TYPE: Patent
LANGUAGE: Chinese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CN 1097731	A	19950125	CN 1993-112075	19930719

PRIORITY APPLN. INFO.: CN 1993-112075 19930719

AB ***2-Keto-L-gulonic acid*** was extracted from fermentation liquid Thus, sodium gulonate in fermentation liquid was converted to gulonic acid solution by strong acidic cation exchange resin. The gulonic acid solution was adsorbed with OH-type resin, and eluted with H2SO4/MeOH to give MeOH solution of gulonic acid with 90-98% yield.

IC ICM C07C059-185
ICS C07C051-47
CC 33-8 (Carbohydrates)
Section cross-reference(s): 16
ST ketogulonic acid ***extn***
IT ***526-98-7P, 2-keto-L-Gulonic acid***
RL: PUR (Purification or recovery); PREP (Preparation)
(***extraction*** of 2-keto-gulonic acid)

L86 ANSWER 15 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1993:5651 HCAPLUS Full-text
DOCUMENT NUMBER: 118:5651
TITLE: Preliminary study of solvent ***extraction*** of α-keto-L-gulonic acid from fermentation liquid
AUTHOR(S): Qian, Weiguo; Shen, Jinyu; Gao, Chunman; Shen Zhongyao
CORPORATE SOURCE: Dep. Chem. Eng., Qinghua Univ., Beijing, 100084, Peop. Rep. China
SOURCE: Zhongguo Yiyao Gongye Zazhi (1992), 23(6), 247-50, 246
CODEN: ZYGZEA; ISSN: 1001-8255
DOCUMENT TYPE: Journal
LANGUAGE: Chinese

AB Solvent ***extraction*** of α-keto-L-gulonic acid from fermentation liquid was studied. The ***extraction*** behavior of the extractant, dioctylamine, and the effects of pH, inorg. acids, and phase ratio on the ***extraction*** equilibrium were systematically explored. The simulation of 3-stage countercurrent ***extraction*** was also done. The exptl. results show that ***extraction*** of α-keto-L-gulonic acid from the fermentation liquid is feasible.

CC 16-1 (Fermentation and Bioindustrial Chemistry)
ST ketogulonate *extn* fermn
IT Fermentation
(ketogulonic acid *extraction* from)
IT *526-98-7, L-xylo-2-Hexulosonic acid*
RL: PROC (Process)
(*extraction* of, from fermentation broth)

L86 ANSWER 16 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:234200 HCAPLUS Full-text
DOCUMENT NUMBER: 112:234200
TITLE: Isolation of 2-keto-polyhydroxy-C6-carboxylic acids, especially *2-keto-L-gulonic acid*, from aqueous fermentation products
INVENTOR(S): Paust, Joachim; Von Deessen, Ulrich; Ernst, Hansgeorg; Schaper, Michael
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Ger. Offen., 4 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3831071	A1	19900315	DE 1988-3831071	19880913 <--
EP 359043	A1	19900321	EP 1989-116070	19890831 <--
R: CH, DE, GB, LI				
JP 02121948	A	19900509	JP 1989-235857	19890913 <--
PRIORITY APPLN. INFO.:			DE 1988-3831071 A	19880913 <--

AB 2-Keto-polyhydroxy-C16-carboxylic acids, especially *2-keto- L-gulonic acid*, are obtained from aqueous Ca-containing fermentation media (biomass-free) by *extraction* at 10-60 bar CO2 pressure in the presence of 2-6 mol equivalent (vs. the keto acids) of an *amine* with 15-40 C atoms with 1.5-2.5 weight parts (vs. the *amine*) of a C4-C8 alkanol at 20-80°. The CaCO3 precipitate is separated and the keto acid-*amine* adduct is converted into the free acid or its derivative
IC ICM C07C059-215
ICS C07C051-487; C07C069-716
ICA C07C087-123; C07C031-12; C07C031-125
CC 17-5 (Food and Feed Chemistry)
ST ketogulonate *extn* fermn medium; carboxylate ketopolyhydroxy *extn* fermn medium
IT Culture media
(2-keto-polyhydroxy-C6-carboxylic acids *extraction* from)
IT *Amines*, uses and miscellaneous
RL: BIOL (Biological study)
(2-keto-polyhydroxy-C6-carboxylic acids separation from fermentation media with)
IT Carboxylic acids
RL: PROC (Process)
(hydroxy oxo, *extraction* of, from fermentation media)
IT *1116-76-3*, Trioctylamine
RL: BIOL (Biological study)
(2-keto-polyhydroxy-C6-carboxylic acids separation from fermentation media with)
IT *526-98-7, 2-keto-L-Gulonic*

acid
RL: PROC (Process)
(*extraction* of, from fermentation media)

L86 ANSWER 17 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:404608 HCAPLUS Full-text
DOCUMENT NUMBER: 113:4608
TITLE: Isolation of 2-ketopolyhydroxyhexanoic acids, especially 2-ketogulonic acid from fermentation media
INVENTOR(S): Schaper, Michael
PATENT ASSIGNEE(S): BASF A.-G., Germany
SOURCE: Ger. Offen., 6 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
DE 3831070	A1	19900322	DE 1988-3831070	19880913 <--
EP 359042	A2	19900321	EP 1989-116069	19890831 <--
EP 359042	A3	19910731		
EP 359042	B1	19950201		
R: CH, DE, GB, LI				
JP 02121947	A	19900509	JP 1989-235856	19890913 <--

PRIORITY APPLN. INFO.: DE 1988-3831070 A 19880913 <--
AB 2-Ketopolyhydroxyhexanoic acids are separated from fermentation media by *extraction* as adducts with a lipophilic *amine* and later splitting of the adduct. Thus, Ca was 1st removed from broth filtrate by addition of a 20% H2SO4 solution to pH 1.3-1.4 and removing the precipitated CaSO4. The liquid was concentrated, and 300 g, containing 30.3 g 2-ketogulonic acid, was stirred with 210 g BuOH and 66 g trioctylamine for 30 min. After phase separation, the upper phase was concentrated under reduced pressure to leave 101 g brown viscous adduct. The adduct was dissolved in hot mineral spirits, from which 27.3 g 1-ketogulonic acid crystallized out.
IC ICM C07C059-215
ICS C07C051-487; C07C069-716
ICA C07C087-123; C07C031-12; C07C031-125
CC 16-1 (Fermentation and Bioindustrial Chemistry)
IT 102-87-4, Tridodecylamine *1116-76-3*, Trioctylamine
RL: BIOL (Biological study)
(ketogulonic acid *extraction* from fermentation medium with)
IT *526-98-7P, 2-Keto-L-Gulonic acid*
RL: PUR (Purification or recovery); PREP (Preparation)
(purification of, from fermentation medium)

L86 ANSWER 18 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1990:117379 HCAPLUS Full-text
DOCUMENT NUMBER: 112:117379
TITLE: 2-Keto-gularic acid manufacture with Pseudogluconobacter for preparation of ketal or acetal derivatives thereof and gulosacchariocascorbic acid
INVENTOR(S): Shirafuji, Hideo; Matsumura, Koichi; Yamaguchi, Takamasa; Nogami, Akio
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 21 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent

LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 01100186	A	19890418	JP 1988-141328	19880608 <--
PRIORITY APPLN. INFO.:			JP 1987-146557 A1	19870611 <--

OTHER SOURCE(S): CASREACT 112:117379

AB Title compound is manufactured by cultivating P. saccharoketogenes in the presence of sorbose, 2-keto-gulonic acid, or 5-keto-D-gluconic acid. P. saccharoketogenes nitroquanium-induced mutant SOP-805 and Bacillus megaterium were shake-cultured in 3-L medium containing sorbose 6, CSL 2.0, dried yeast 1.0%, and salts for 70 h at 30% to obtain 48 mg 2-keto-gularic acid (I)/mL culture medium. I dicalcium salt 49.0 g (purity, 84.9%) was reacted with concentrated HCl, subjected to chromatog., and ***extracted*** to obtain crude gulosaccharo-ascorbic acid 32.6g (purity, 97.8%; yield 63.8%). Preparation of 2,3-O-isopropyridine-2-keto-L-gularic acid from I was given.

IC ICM C07H007-02
ICS C07D307-62; C12P007-44
ICI C12P007-44, C12R001-01
CC 16-5 (Fermentation and Bioindustrial Chemistry)
Section cross-reference(s): 33
IT 87-79-6, L-Sorbose ***526-98-7, 2-Keto-L-Gulonic acid*** 5287-64-9, 5-Keto-D-Gluconic acid
RL: BIOL (Biological study)
(in ketogularate preparation with Pseudogluconobacter)
IT ***50-81-7DP***, L-Ascorbic acid, gulosaccharo derivs., acetals, and sodium salts 115655-97-5P 125508-64-7P 125508-65-8P 125508-66-9P 125668-41-9P
RL: PREP (Preparation)
(preparation of, ketogularate for)

L86 ANSWER 19 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1987:457454 HCAPLUS Full-text
DOCUMENT NUMBER: 107:57454
TITLE: Process for the manufacture of ketogulonic acid
INVENTOR(S): Fujiwara, Akiko; Sugisawa, Teruhide; Shinjoh, Masako; Setoguchi, Yutaka; Hoshino, Tatsuo
PATENT ASSIGNEE(S): Hoffmann-La Roche, F., und Co. A.-G., Switz.
SOURCE: Eur. Pat. Appl., 17 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 213591	A2	19870311	EP 1986-111793	19860826 <--
EP 213591	A3	19881005		
EP 213591	B1	19920325		
R: AT, BE, CH, DE, FR, GB, IT, LI, NL				
AT 74163	T	19920415	AT 1986-111793	19860826 <--
DK 8604087	A	19870301	DK 1986-4087	19860827 <--
JP 62048389	A	19870303	JP 1986-202600	19860828 <--
US 5541108	A	19960730	US 1994-266998	19940628 <--
PRIORITY APPLN. INFO.:			GB 1985-21359 A	19850828 <--
			GB 1986-17888 A	19860722 <--

US 1986-899586	B1	19860825 <--
EP 1986-111793	A	19860826 <--
US 1990-517972	B1	19900430 <--
US 1993-16478	B1	19930210 <--
US 1994-183924	B1	19940118 <--

OTHER SOURCE(S): CASREACT 107:57454

AB Vitamin C precursor ***2-keto-L-gulonic acid*** (I) is manufactured from L-sorbose and/or D-sorbitol by cultivation of Gluconobacter oxydans having a high activity of L-sorbose dehydrogenase or by its cell free ***extract*** G. oxydans U-13 was cultivated in a medium containing L-sorbose 100, glycerol 0.5, yeast ***extract*** 15.0 g/L and salts at 30° on a rotary shaker for 4 days to yield 64.4 g of I. The cell free ***extract*** was also able to convert 100 mg of L-sorbose to 25 mg of I.

IC C12P007-60; C07D307-62; C12N001-20; C12N009-04

CC 16-2 (Fermentation and Bioindustrial Chemistry)

IT ***526-98-7P***
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manufacture of, from sorbose or sorbitol with sorbose dehydrogenase-containing
Gluconobacter oxydans)

IT ***50-81-7P***, Ascorbic acid, preparation
RL: BMF (Bioindustrial manufacture); BIOL (Biological study); PREP (Preparation)
(manufacture of, ketogulonate enzymic manufacture from sorbose or sorbitol with
Gluconobacter oxydans for)

L86 ANSWER 20 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1985:144140 HCAPLUS Full-text

DOCUMENT NUMBER: 102:144140

TITLE: Biosynthetic 2,5-diketogluconic acid reductase recombinant cells and expression vectors for its production, and its use in preparing 2-keto-1-gulonic acid

INVENTOR(S): Estell, David Aaron; Light, David Richard; Rasteter, William Harry; Lazarus, Robert Alan; Miller, Jeffrey Veach

PATENT ASSIGNEE(S): Genentech, Inc., USA

SOURCE: Eur. Pat. Appl., 45 pp.
CODEN: EPXXDW

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 2

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 132308	A1	19850130	EP 1984-304277	19840625 <--
EP 132308	B1	19910306		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
US 4757012	A	19880712	US 1984-620651	19840614 <--
US 4758514	A	19880719	US 1984-620652	19840614 <--
AU 8429832	A	19850103	AU 1984-29832	19840625 <--
AU 594921	B2	19900322		
EP 305608	A1	19890308	EP 1987-202624	19840625 <--
EP 305608	B1	19921111		
R: AT, BE, CH, DE, FR, GB, IT, LI, LU, NL, SE				
IL 72225	A	19900831	IL 1984-72225	19840625 <--
IL 89241	A	19900831	IL 1984-89241	19840625 <--

IL 89242	A	19900831	IL 1984-89242	19840625 <--
AT 61409	T	19910315	AT 1984-304277	19840625 <--
DK 8403107	A	19841229	DK 1984-3107	19840626 <--
DK 175702	B1	20050124		
BR 8403146	A	19850212	BR 1984-3146	19840627 <--
ZA 8404911	A	19860226	ZA 1984-4911	19840627 <--
JP 60070073	A	19850420	JP 1984-135016	19840628 <--
JP 05086186	B	19931210		
ES 533819	A1	19851216	ES 1984-533819	19840628 <--
CA 1339107	C	19970729	CA 1984-457803	19840628 <--
CA 1341085	C	20000815	CA 1984-590942	19840628 <--
ES 545262	A1	19871216	ES 1985-545262	19850716 <--
ES 552538	A1	19870501	ES 1986-552538	19860228 <--
ES 552540	A1	19880416	ES 1986-552540	19860228 <--
ES 552540	A5	19880429		
ES 552542	A1	19880416	ES 1986-552542	19860228 <--
US 5004690	A	19910402	US 1989-380788	19890717 <--
JP 06014771	A	19940125	JP 1993-37930	19930226 <--
JP 07040936	B	19950510		

PRIORITY APPLN. INFO.:	US 1983-508409	A	19830628 <--
	US 1983-508410	A	19830628 <--
	US 1983-508628	A	19830628 <--
	US 1984-620585	A	19840614 <--
	US 1984-620651	A	19840614 <--
	US 1984-620652	A	19840614 <--
	EP 1984-304277	P	19840625 <--
	IL 1984-72225	A	19840625 <--
	CA 1984-457803	A3	19840628 <--
	US 1986-620652	A	19860614 <--
	US 1987-135888	A1	19871221 <--

AB Recombinant DNA mols. and suitable gene cloning vectors are prepared for the transformation and cloning of the gene encoding 2,5-diketogluconic acid reductase (I) [95725-95-4] from bacteria such as Corynebacteria. The I gene is incorporated into plasmid expression vectors and then used to transform host Escherichia coli or Escherichia herbicola cells. The I formed by transformed clones is used to convert 2,5-diketogluconic acid (II) [2595-33-7] to 2-keto-L-gluconic acid (III) [*526-98-7*], an intermediate in the production of ascorbic acid [*50-81-7*]. Thus, I from Cornyebacterium was ***extracted*** and characterized for its structure, kinetic parameters, stereospecificity, and pH optimum. I was ***extracted*** by cell lysis and purified by ion-exchange chromatog. on DEAE-cellulose, affinity chromatog. with Cibactron blue F-3GR as affinity adsorbent, and HPLC on an Altex TSK column buffered ammonium bicarbonate. The I eluted as a single peak and was >99% pure. SDS-gel electrophoresis indicated a mol. weight of 34,000. The enzyme was NADPH-specific and had a pH optimum of 5-7.6. The Km for II was 15.5 mM and the Vmax was 9.8 μmol/min/mg. The amino acid sequence of I was determined and the information used in construction of synthetic DNA probes. The probes (two 43-mers) were prepared by the phosphodiester method and were used to select I-specific DNA sequences from a plasmid genomic library in E. coli. The I gene was isolated and inserted downstream of the E. coli tryptophan promoter or the chloramphenicol acetyltransferase promoter or expression plasmid. Erwinia herbicola Was transformed with I-gene-containing plasmids such as ptrp1-35. Erwinia Grown in glucose-supplemented medium formed III (0.6 mg/μL at 57 h growth). The I produced by transformed Erwinia cells may also be immobilized in a solid support and used in formation of III and ultimately, ascorbic acid.

IC ICM C12N015-00
ICS C12N009-04; C12P007-60; C07D307-62

ICA C12R001-15; C12R001-18

CC 3-4 (Biochemical Genetics)

Section cross-reference(s): 7
IT *50-81-7*, biological studies *526-98-7* 2595-33-7
RL: FORM (Formation, nonpreparative)
(formation of, in transformed Erwinia herbicola containing cloned diketogluconic acid reductase gene)

L86 ANSWER 21 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1976:29189 HCAPLUS Full-text
DOCUMENT NUMBER: 84:29189
TITLE: L-Ascorbic acid
INVENTOR(S): Obata, Yasuo; Nara, Kiyoshi; Tarui, Keinosuke; Mochizuki, Kazuo; Isono, Masao
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd., Japan
SOURCE: Jpn. Tokkyo Koho, 5 pp.
CODEN: JAXXAD
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 50022113	B	19750728	JP 1962-43474	19621001 <--
PRIORITY APPLN. INFO.:			JP 1962-43474	19621001 <--

AB L-ascorbic acid (I) [*50-81-7*] or Na L-ascorbate (II) [134-03-2] were chemical synthesized from *2-keto-L- gulonic acid* (III) [*526-98-7*] after formation of the intermediate from sorbitol [50-70-4] by fermentation with an Acetobacter, Bacterium, or Pseudomonas microorganism. Thus, Acetobacter species IFO 3243 was cultured on 30 l. of a medium containing sorbitol 5, glucose 0.5, yeast *extract* 0.5, and CaCO3 2% at 28-9° for 150 hr with aeration at 15-24 l./min. after which the medium was passed through Amberlite IR-120 (H+ form) and active C. Yield was 60 g of crystalline III. Half of this was esterified with 240 ml of MeOH in the presence of 0.3 ml of 98% sulfuric acid and lactonized with 8 g of Na methylate to yield 26.3 g of II. The other 30 g of crystalline III were treated with MeOH (240 g) and Amberlite-200 (6 g) by refluxing for 3 hr to yield 22.0 g of I.
IC C12D; C07D
CC 16-2 (Fermentations)
IT *50-81-7P*, preparation
RL: PREP (Preparation)
(by fermentation, from sorbitol with Acetobacter)
IT *526-98-7*
RL: BIOL (Biological study)
(in ascorbate manufacture from sorbitol with Acetobacter)

L86 ANSWER 22 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1968:15820 HCAPLUS Full-text
DOCUMENT NUMBER: 68:15820
TITLE: Comparison of 3-methyl-2-benzothiazolinone hydrazone and other methods for the determination of sugars and other α-glycolic derivatives. Application to air pollution
AUTHOR(S): Sawicki, Eugene; Schumacher, Roy; Engel, Carole R.
CORPORATE SOURCE: Robert A. Taft Sanit. Eng. Center, U. S. Dep. of Health, Education, and Welfare, Cincinnati, OH, USA
SOURCE: Microchem. J. (*1967*), 12(3), 377-95
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The method of Bartos (CA 61: 3701e) for the determination of sugars with 3-methyl-2-benzothiazolinone hydrazone was applied to aqueous *exts.* of

atmospheric dust and its periodic acid cleavage products in an investigation of the possible contribution of carbohydrates to airborne allergens. The results were interpreted as showing 9 to 40 mg. α-glycolic compound/g. particulate sample or 2 to 7 μg./m.3 air collected over several U.S. cities in 1965 and 1966. C6H6 ***extracted*** 85 mg./g. particulate sample. The MBTH method was applied to a long list of carbohydrates and polyols. Several comparisons were made with methods based on chromotropic acid, pyrogallol, orcinol, and azulene.

CC 59 (Air Pollution and Industrial Hygiene)

IT 50-23-7, analysis 50-69-1 50-70-4 ***50-81-7***, analysis
50-99-7, analysis 53-06-5, analysis 56-81-5, analysis 56-82-6
57-48-7, analysis 58-61-7, analysis 58-86-6 58-96-8 59-23-4,
analysis 64-85-7 65-46-3 66-84-2 69-65-8 69-79-4 72-19-5,
analysis 72-23-1 87-79-6 87-89-8 87-99-0 90-80-2 96-26-4
99-20-7 107-21-1, analysis 116-09-6 118-00-3 147-81-9 149-32-6
152-58-9 154-17-6 251-24-1D, Furo[3,2-b]furan, sugar derivative 327-97-9
473-81-4 488-81-3 504-63-2 512-69-6 513-86-0 526-95-4
526-98-7 528-50-7 533-67-5 562-73-2 576-36-3 597-12-6
608-66-2 653-63-4 902-04-5 958-09-8 961-07-9 3068-00-6
6556-12-3, analysis 7512-17-6 14984-39-5 16727-30-3 19043-79-9
26264-14-2 32449-92-6 35898-49-8, Mannuronic acid, γ-lactone
RL: ANT (Analyte); ANST (Analytical study)
(determination of)

L86 ANSWER 23 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1964:83153 HCAPLUS Full-text
DOCUMENT NUMBER: 60:83153
ORIGINAL REFERENCE NO.: 60:14600a-b
TITLE: Ascorbic acid
INVENTOR(S): Wada, Shozo
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd.
SOURCE: 2 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 39001406	B4	19640214	JP	19610428 <--
PRIORITY APPLN. INFO.:			JP	19610428 <--

AB A solution of 5 g. ***L-xylo-hexulosonic acid*** in 50 cc. MeOH is boiled with 1 g. Amberlite IR-120 3 hrs., the mixture cooled and filtered to remove Amberlite, the filtrate treated with 7 g. methanolic solution of 0.6 g. Na, then 10 cc. MeOH containing 1 g. HCl added, the whole concd, in vacuo, the residue ***extracted*** with EtOH, and the ***extract*** concentrated in vacuo to give 3.8 g. ascorbic acid, columns, m. 185° (H2O).

CC 43 (Carbohydrates)

IT ***50-81-7P***, Ascorbic acid
RL: PREP (Preparation)
(manufacture of)

L86 ANSWER 24 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1965:54890 HCAPLUS Full-text
DOCUMENT NUMBER: 62:54890
ORIGINAL REFERENCE NO.: 62:9742h,9743a
TITLE: Manufacture of ***2-keto-L-gulonic acid***
PATENT ASSIGNEE(S): Takeda Chemical Industries, Ltd.

SOURCE: 29 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
FR 1376741		19641030	FR		<--
GB 994119			GB		
US 3234105		19660208	US 1963-309847	19630918	<--
PRIORITY APPLN. INFO.:			JP	19620920	<--

AB *2-Keto-L-gulonic acid*
(I) was produced from sorbitol (II) by oxidation with Aceto-bacter or Pseudomonas apparatus and the products converted to L-ascorbic acid (III) by enolization and lactonization. The bacteria were grown on media containing 2-5% II, pH 5-8, temperature 28-29°, with aeration, for about 150 hrs. Glycerol, glucose, or other carbohydrates could be added as supplementary C sources, and organic and inorg. N and minerals were required. A typical medium contained II 5%, glucose 0.5%, yeast *extract* 0.5%, and CaCO3 2.0%. Yield of I was 4.3 g./l. I could be recovered as such, or the broth (about 15 l.) could be decolorized, filtered, treated with Amberlite IR-120, type H, and dried in vacuo. The residue was dissolved in 700 ml. of MeOH, treated with activated charcoal, filtered, 0.9 ml. of concentrated H2SO4 added, and the solution again filtered. It was then heated for 3 hrs. with stirring, the MeOH removed by distillation, the residue washed with MeOH, and dried. L-Ascorbic acid, 22.5 g., was recovered. A similar procedure using Amberlite IRA-400, BuOH, HCl, and benzene could be employed.
IC C07C; C12K
CC 74 (Fermentations)
IT Fermentation
(*L-xylo-hexulosonic acid*, by Acetobacter or Pseudomonas)
IT *50-81-7P*, Ascorbic acid 7270-86-2P, *L-xylo-Hexulosonic acid*, γ-lactone
RL: PREP (Preparation)
(manufacture of, Acetobacter or Pseudomonas in)
IT 3031-98-9P, *L-xylo-Hexulosonic acid*, methyl ester
RL: PREP (Preparation)
(preparation of)

L86 ANSWER 25 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1963:431831 HCAPLUS Full-text
DOCUMENT NUMBER: 59:31831
ORIGINAL REFERENCE NO.: 59:5739e-h
TITLE: *2-Keto-L-gulonic acid*
INVENTOR(S): Huang, Hsing T.
PATENT ASSIGNEE(S): Chas. Pfizer & Co., Inc.
SOURCE: 4 pp.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE	
US 3043749		19620710	US 1960-45783	19600728	<--
PRIORITY APPLN. INFO.:			US	19600728	<--

AB *2-Keto-L-gulonic acid* was prepared from L-sorbose by cultivating, under submerged, aerobic conditions, organisms of the genus Pseudornonas in an aqueous medium containing a source of N, C, and minerals. A pH of 6-9, a temperature of 25°-40°, and an incubation time of 1-4 days were used. Thus, P. viridiflava NRRL B-94 was rinsed from an agar slant into a 1. of sterile medium containing (g./l.) KH2PO4 0.4, MgSO4.7H2O 0.2, NZ-*amine* B 2.5, yeast *extract* 0.5, sorbose (sterilized sep.) 10, and glycerol (sterilized sep.) 2. The inoculated medium was held at 28° with shaking for 16 hrs. To 2 1. of sterilized medium containing (g./l.) NZ-*amine* B 5, yeast *extract* 0.5, and sorbose (sterilized sep.) 20, 100 ml. of the inoculum was added, incubated at 28° with stirring at 1750 r.p.m. and aerated (1 volume air/volume medium/ min.). During the reaction, the pH increased to 8. Samples were periodically taken for the estimation of 2-keto-L-gulonie acid by paper chromatography using the solvent system: EtOAc, HOAc, and water (11:2:2 by volume). The chromatogram was treated with o-phenylenediamine and heated at 70°. Under ultraviolet light the desired product gave a yellow fluorescent spot. After 60 hrs., the product was recovered by filtration and passing the filtrate over Amberlite IR 120 cation-exchange resin in the H cycle, then adsorbing the product on Amberlite IR 45 anion-exchange resin in the hydroxide form. The product was eluted with N NH4OH; the eluate was concentrated and decolorized with activated C. The pH was adjusted to 1.5 by treatment with the IR 120 resin; CaCO3 and Ca(OH)2 were added to a pH of 66.5. he slurry was filtered and the pH of the filtrate was adjusted to 1.5 by treatment with IR 120 resin. The solution was passed over the IR 45 resin and fractional elution with 0.1N NH4OH gave a pure solution which was then concentrated The product was converted to the Na salt which was recovered as a crystalline solid. The product (1 g./100 mh) at 24° had an optical rotation of -24.4° in H2O.

INCL 195047000

CC 74 (Fermentations)

IT 7270-86-2P, *L-xylo-Hexulosonic acid*, γ-lactone
RL: PREP (Preparation)
(manufacture of, from sorbose by Pseudomonas)

IT 87-79-6P, Sorbose
RL: PREP (Preparation)
(*L-xylo-hexulosonic acid* manufacture from, by Pseudomonas)

L86 ANSWER 26 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN

ACCESSION NUMBER: 1961:72691 HCAPLUS Full-text

DOCUMENT NUMBER: 55:72691

ORIGINAL REFERENCE NO.: 55:13775f-g

TITLE: The separation of O-diisopropylidenesorbose in the production of *ascorbic acid*

AUTHOR(S): Shnaidman, L. O.; Dul'china, B. M.; Mavricheva, O. A.; Shevyreva, O. N.

SOURCE: Trudy Vsesoyuz. Nauck.-Issledovatel. Vitamin. Inst. (*1959*), 6, 48-52

DOCUMENT TYPE: Journal

LANGUAGE: Unavailable

AB Separation of O-diisopropylidenesorbose by *extraction* with CHCl3 and further treatment of O-isopropylidenesorbose with acetone did not increase the yield of O-diisopropylidene-2-keto-l-gulonic acid hydrate above that obtained by the alkali method. The *extraction* method complicated production, worsened working conditions, and increased costs.

CC 17 (Pharmaceuticals, Cosmetics, and Perfumes)

IT Gulonic acid, di-O-isopropylidene-2-keto-
(*ascorbic acid* from)

IT Gulonic acid, di-O-isopropylidene-2-keto-

RL: PREP (Preparation)
(in *ascorbic acid* preparation, separation of)
IT *50-81-7P, Ascorbic acid*
RL: PREP (Preparation)
(di-O-isopropylene-*2-keto-L-gulonic acid* in preparation of)
IT 17682-70-1P, Sorbose, 2,3:4,6-di-O-isopropylidene-
RL: PREP (Preparation)
(in *ascorbic acid* preparation, separation of)
IT *50-81-7P, Ascorbic acid*
RL: PREP (Preparation)
(preparation of, activated charcoal in)

L86 ANSWER 27 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1959:44855 HCAPLUS
DOCUMENT NUMBER: 53:44855
ORIGINAL REFERENCE NO.: 53:8009g-i
TITLE: 2-Oxo-L-gulonic acid
PATENT ASSIGNEE(S): Chas. Pfizer & Co., Inc.
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 800634		19580827	GB 1955-21692	19550727 <--

AB A novel process is presented for the preparation of 2-oxo-L-gulonic acid by subjecting L-idonic acid or a nontoxic L-idonate to biol. oxidation. A culture of a mixture of ATCC 11867 and ATCC 11868 was grown 48 hrs. under aerobic conditions on a nutrient broth, 1 cc. of the broth inoculated into 100 cc. aqueous fermentation mixture of 2% Na L-idonate, 0.1% dextrose, and 0.5% yeast *extract* of pH 7.0, the mixture maintained at 28° under aerobic conditions 34 hrs., the broth evaporated and the pH brought to 4 by HOAc, NaOH added to adjust the pH to 7.5, sufficient MeOH added for a final concentration of 70% by volume, the precipitate of Na 2-oxo-L-gulonate filtered off, and converted to the free acid by treatment with HCl. Nontoxic L-idonates which may be used include salts of the alkali metals, NH3, *amines* which will not interfere with the metabolism of the organism, and esters of the simple alcs.
CC 10C (Organic Chemistry: Carbohydrates, Amino Acids, and Proteins)
IT *526-98-7P*, Gulonic acid, 2-keto-, L-
RL: PREP (Preparation)
(preparation of)

L86 ANSWER 28 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1953:67092 HCAPLUS Full-text
DOCUMENT NUMBER: 47:67092
ORIGINAL REFERENCE NO.: 47:11398a-b
TITLE: Vitamin C and crystalline lens. I
AUTHOR(S): Yamamoto, Y.
SOURCE: Acta Soc. Ophthalmol. Japan (*1952*), 56, 1339-42
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB Suspensions of rabbit lens tissue can synthesize vitamin C from *2 -keto-L-gulonic acid* but lose this ability if the lens is made cataractous by a needling 3-7 days before removal. It recovers this ability if a heat-inactivated *extract* of normal lens or a heated *extract* of muscle is added.
CC 11E (Biological Chemistry: Nutrition)
IT *50-81-7P*, Vitamin, C

RL: PREP (Preparation)
(formation of, by crystalline lens)

L86 ANSWER 29 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1940:2627 HCAPLUS Full-text
DOCUMENT NUMBER: 34:2627
ORIGINAL REFERENCE NO.: 34:380d-g
TITLE: The synthesis of l-ascorbic acid (vitamin C)
AUTHOR(S): Maksimov, V. I.; Nikonova, V. V.; Lazarev, A. F.; Zvereva, L. A.
SOURCE: Zhurnal Obshchei Khimii (*1939*), 9, 936-43
CODEN: ZOKHA4; ISSN: 0044-460X
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable
AB A review is given on the different methods used for the synthesis of l-ascorbic acid. The most convenient method was found to be that starting with l-sorbose via diacetone-*2-keto-l- gulonic acid*. l-Sorbose (200 g.), obtained from l-sorbitol, which was prepared from l-glucose by catalytic hydrogenation in the presence of Ni at a H pressure of 8-30 atmospheric, gives diacetone-l-sorbose (I), m. 77-8°, b0.1-0.3 130-5°, in 90-2% yield, when treated with 4 l. dry acetone, 490 g. dry CuSO4 and 10 g. concentrated H2SO4 at room temperature for 40-5 hrs. I (600 g.) is dissolved in 6 l. 5% KOH, and 564 g. KMnO4 in 12 l. H2O is added within 2 hrs. at 18-20° while stirring vigorously. The mixture is stirred for 4 hrs., filtered, the residue washed with hot H2O, the filtrate + washing waters neutralized with 15% H2SO4 and the solution evaporated in vacuo at 60° to about. 1 l. I is *extd* . by means of CHCl3 or Et2O. To the aqueous solution of K diacetone-2- ketogulonate are added at 0° 410 g. concentrated HCl + 400 g. ice while stirring. The hydrate of diacetone-*2-keto-l -gulonic acid* (II), m. 96-8°, is obtained in 436-456.5 g. yield. l-Ascorbic acid is obtained from II either by means of alc. HCl, or on treatment with H2SO4 or H3PO4.
CC 10 (Organic Chemistry)
IT *50-81-7P*, Vitamin C
RL: PREP (Preparation)
(synthesis of)

L86 ANSWER 30 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1938:4722 HCAPLUS
DOCUMENT NUMBER: 32:4722
ORIGINAL REFERENCE NO.: 32:731g-h
TITLE: Vitamin C
INVENTOR(S): Reichstein, Tadeus
DOCUMENT TYPE: Patent
LANGUAGE: Unavailable
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
GB 469157		19370720	GB 1936-16844	19360617 <--

AB l-Ascorbic acid is obtained by treating *2-keto- l-gulonic acid* with alkali salts of weak acids in alc. solution and isolating the l-ascorbic acid from the precipitated alkali salt by treatment with strong acids. Among examples, Na2CO3 is added to a MeOH solution of Me 2-keto-l-gulonate and the solution boiled and the precipitated Na ascorbate is filtered, treated with HCl, evaporated to dryness and *extracted* with absolute alc.
CC 17 (Pharmaceuticals, Cosmetics, and Perfumes)
IT *50-81-7P*, Vitamin C
RL: PREP (Preparation)
(synthesis of)

L86 ANSWER 31 OF 48 HCAPLUS COPYRIGHT 2007 ACS on STN
ACCESSION NUMBER: 1934:39297 HCAPLUS Full-text
DOCUMENT NUMBER: 28:39297
ORIGINAL REFERENCE NO.: 28:4704i,4705a-h
TITLE: Synthesis of *ascorbic acid* and related compounds by the osone-hydrocyanic acid method
AUTHOR(S): Reichstein, T.; Grussner, A.; Oppenauer, R.
SOURCE: Helvetica Chimica Acta (*1934*), 17, 510-20
CODEN: HCACAV; ISSN: 0018-019X
DOCUMENT TYPE: Journal
LANGUAGE: Unavailable

AB cf. C. A. 28, 510.7. Further details for the preparation of d- and l-threo-3-keto and d- and l-erythro-3-ketohexonic acid lactones ((I), (II), (III) and (IV)) and of d-arabo-, d-lyxo- and l-xylo-3-ketoheptonic acid lactones ((V), (VI) and (VII)) are given in brief, since, with the exception of III and VII the compds. have been previously synthesized by the English workers and III has been prepared in other ways by Ohle (C. A. 28, 2332.1) and by Maurer and Schiedt (C. A. 24, 4777). The 4 isomeric pentosazones were cleaved with BzH (C. A. 28, 510.7). From 30 g. of l-arabinosazone in 500 cc. of 92% alc. and 3800 cc. of hot distilled H2O on treatment with 30 g. of AcOH and 48 g. of BzH, 6 g. (40%) of high-vacuum dried l-arabinosone was produced. The hexosazones were cleaved with concentrated HCl (Ber. 22, 87(1889)) and the filtrate from the PhHNNH2.HCl at -15° was diluted, stirred with PbCO3 to slight alkalinity to Congo red and filtered. The yellow solution was treated with 10 g. Pb(OAc)2 in 100 cc. H2O and after cooling, Ba(OH)2 was added till phenolphthalein showed definite alkalinity By this modification of Fischer's procedure 20 g. of the hexosazones gave 4 g. of glucosone (40%), 2.5 g. of galactosone and 1.5 g. of l-gulosone. A general method, inclusive of the procedure of the English authors, is given in detail for the preparation of the 3-keto-sugar acids from the osones. A solution of 6 g. of osone in 400 cc. of air-free H2O at 15-20° is treated with 3.6 g. of KCN in H2O in a N2 atmospheric for 10-15 min. About 6 cc. of concentrated HCl is added and the slightly acid (to Congo red) solution is concentrated in vacuo to 20 cc. This concentrate, diluted to 50 cc. with H2O saturated with CO2 and treated with 10 cc. of concentrated HCl, is heated for 30-40 hrs. at 48-50° in a small CO2-filled stoppered flask. The residue, after vacuum drying below 40°, is ***extd*** . repeatedly with alc. and the inactive material is precipitated with Et2O from the acidic solution Precipitation with Pb(OAc)2, and removal of the Pb with H2S gives colorless solns. which on low-temperature vacuum drying yield colorless or lightly colored sirups from which crystalline material forms on concentration and treatment with suitable solvents. By this procedure 2 g. of d-arabinosone gave 0.5 g. crystalline III, (d-arabo-***ascorbic acid***), m. 174° (corrected, decomposition), [α]D16.5° -17°, analogous in properties to the compound m. 169-70° (corrected, decomposition), prepared by the rearrangement of Me 2-ketogluconate under the conditions used in the preparation of l-***ascorbic acid*** from ***2 -keto-l-gulonic acid*** (C. A. 28, 3718.9). Similarly 6 g. of l-arabinosone yielded 0.7 g. of crystalline IV, m. 170° (corrected, decomposition), [α]D16.5 17° (c 1.82 in 0.01 N HCl). V (d-gluco-***ascorbic acid***) C7H10O7, m. 192° (corrected, decomposition), [α]D14.5 -37.8° (c 2.41 in 0.01 N HCl); VI (d-galacto-***ascorbic acid***), C7H10O7.H2O, m. 134-5° (decomposition), [α]D14.5 -5.8 (c 2.17), and VII (l-gulo- ***ascorbic acid***), m. 183-4° (corrected, decomposition), [α]D18 -19.0° (c 1.37 in 0.01 N HCl), were similarly prepared The addition of 1.8 g. of KCN to 3 g. of d-xylosone in 200 cc. H2O gave, after standing for 15 min., treatment with HCl and ***extraction*** with MeOH, a nitrile (or a secondary rearrangement product), which on hydrolysis with 7.5% HCl yielded 0.8 g. of pure d-***ascorbic acid.*** The primary product from d-glucosone and HCN (d-arabo-3-ketoheptonic acid nitrile), C7H1NO6, was isolated as fine crystals, decomposing above 200°, [α]D about -

18.6°, converted by HCl into V. Treatment of II with CH2N2 gave colorless needles of l-***ascorbic acid*** 3-Me ether (VIII), C7H10O6, m. 120-2°, [α]D19 42° (c 0.715 in absolute MeOH). An aqueous solution of VIII was neutral to litmus, did not reduce I solution, AgNO3 or dichlorophenol-indophenol and gave an intense violet-blue color with FeCl3. The methylation of acetone-l-***ascorbic acid*** produced the acetone comp. of VIII, C10H14O6, m. 88-90°, [α]D19 about 20° (c 1.235 in MeOH), with the same properties as VIII.

CC 10 (Organic Chemistry)

IT ***50-81-7P***, Araboascorbic acid, l- ***50-81-7P***, Vitamin C, 3-methyl derivative, acetone derivative ***50-81-7P***, Vitamin C, 3-methyl derivative 89-65-6P, Araboascorbic acid, d- 27968-85-0P, Guloascorbic acid, l- 131530-75-1P, Galactoascorbic acid, d- 880144-06-9P, Glucoascorbic acid, d-
RL: PREP (Preparation)
(preparation of)

L86 ANSWER 32 OF 48 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

ACCESSION NUMBER: 1996:379403 BIOSIS Full-text
DOCUMENT NUMBER: PREV199699101759
TITLE: Characterisation of 2,5-diketo-D-gluconic acid reductase from Corynebacterium sp.
AUTHOR(S): Maremonti, Michele [Reprint author]; Greco., Guido, Jr. [Reprint author]; Wichmann, Rolf
CORPORATE SOURCE: Dep. Ingegneria Chimica, Univ. Napoli, "Federico II", Piazzale V. Tecchio 80, 80125 Napoli, Italy
SOURCE: Biotechnology Letters, (1996) Vol. 18, No. 7, pp. 845-850.
CODEN: BILED3. ISSN: 0141-5492.
DOCUMENT TYPE: Article
LANGUAGE: English
ENTRY DATE: Entered STN: 26 Aug 1996
Last Updated on STN: 11 Oct 1996

AB 2,5-diketo-D-gluconic acid reductase, that converts 2,5-diketo-D-gluconic acid into ***2-keto-L-gulonic acid*** (the direct precursor of vitamin C) was ***extracted*** and purified from Corynebacterium sp.. The enzyme was characterized in terms of kinetic parameters, molecular weight and isoelectric point. Enzyme stability at different operating temperatures was investigated, as well.

L86 ANSWER 33 OF 48 BIOSIS COPYRIGHT (c) 2007 The Thomson Corporation on STN

ACCESSION NUMBER: 1982:33509 BIOSIS Full-text
DOCUMENT NUMBER: PREV198222033509; BR22:33509
TITLE: ***EXTRACTION*** OF DI ISO PROPYLIDENE-***2-KETO-L GULONIC-ACID*** FROM ITS MOTHER SOLUTION IN THE MANUFACTURE OF ***ASCORBIC-ACID***.
AUTHOR(S): KHACHATUROV S L [Reprint author]; MASLOV A E; SHUKHAT M A; BEREGOVYKH V V; PAL'CHIK K B; TERENT'EV V V; VINOGRADOVA G V
CORPORATE SOURCE: ALL-UNION SCIENTIFIC RES, MOSCOW, USSR
SOURCE: Pharmaceutical Chemistry Journal (English Translation of Khimiko-Farmatsevticheskii Zhurnal), (1980) Vol. 14, No. 1, pp. 828-831.
CODEN: PCJOAU. ISSN: 0091-150X.
DOCUMENT TYPE: Article

FILE SEGMENT: BR
LANGUAGE: ENGLISH

L86 ANSWER 34 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2006-569349 [58] WPIX Full-text
DNC C2006-176886 [58]
TI New vitamin C production system associated gene 01 encoding a protein involved in L-***ascorbic acid*** biosynthesis for use as a biotechnological tool in the production of vitamin C from microorganisms
DC B04; D16
IN SHINJOH M
PA (STAM-C) DSM IP ASSETS BV
CYC 111
PI WO 2006084647 A1 20060817 (200658)* EN 48[0]
ADT WO 2006084647 A1 WO 2006-EP1013 20060206
PRAI EP 2005-405092 20050211
IPCI C12N0015-63 [I,A]; C12N0015-63 [I,C]; C12N0005-10 [I,A]; C12N0005-10 [I,C]; C12N0009-90 [I,A]; C12N0009-90 [I,C]; C12P0017-02 [I,C]; C12P0017-04 [I,A]; C12P0007-40 [I,C]; C12P0007-60 [I,A]; C12R0001-01 [N,A]; C12R0001-02 [N,A]
AB WO 2006084647 A1 UPAB: 20060911
NOVELTY - A polynucleotide encoding a protein involved in vitamin C production system (VCS) is new, where the polynucleotide is designated VCS 01.

DETAILED DESCRIPTION - A polynucleotides encoding a protein involved in a vitamin C production system (VCS) is new. The polynucleotide is designated VCS 01.

The polynucleotide is selected from:

(a) a polynucleotide encoding a polypeptide having a sequence of 473 amino acids, given in the specification (SEQ ID NO: 2);

(b) a polynucleotide having a sequence of 1422 nucleotides, given in the specification (SEQ ID NO: 1);

(c) a polynucleotide having a nucleotide sequence obtainable by nucleic acid amplification such as polymerase chain reaction, using genomic DNA from a microorganism as a template and a primer set having a sequence of 20 nucleotides, given in the specification (SEQ ID NO: 3 or SEQ ID NO: 4);

(d) a polynucleotide comprising a nucleotide sequence encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of groups (a) - (c), where in the derivative at least one amino acid residue is conservatively substituted compared to the polypeptide and the fragment or derivative has the activity of a VCS 01 polypeptide;

(e) a polynucleotide, the complementary strand of which hybridizes under stringent conditions to a polynucleotide of groups (a) - (d) and which encodes a VCS 01 polypeptide; and

(f) a polynucleotide which is at least 70 (preferably 85, 90 or 95)% identical to a polynucleotide of groups (a) - (d) and which encodes a VCS 01 polypeptide; or its complementary strand.

INDEPENDENT CLAIMS are included for:

(1) a vector containing the polynucleotide;

(2) a microorganism genetically engineered with the polynucleotide or with the vector;

(3) a polypeptide encoded by the polynucleotide;

(4) producing cells capable of expressing the polypeptide comprising genetically engineering the cells with the new polynucleotide or the vector of (1);

(5) production of the polypeptide in the microorganism;

(6) producing an disrupted endogenous VCS 01 gene in microorganism having the polynucleotide;

(7) production of a vitamin C producing microorganism, which contains an endogenous gene having the polynucleotide; and

(8) production of vitamin C with the microorganism or directly from D-sorbitol or L-sorbose, where vitamin C and/or ***2-keto -L-gulonic acid*** (2-***KGA***) is
isolated as the fermentation product.

USE - The polynucleotide is used in the production of vitamin C from microorganisms (claimed).

ADVANTAGE - The gene improves the yield and/or efficiency of production of vitamin C and ***2-keto-L- gulonic acid*** (2-***KGA***) produced by the microorganism. The microorganism is capable of directly producing Vitamin C from D-sorbitol and L-sorbose in quantities of 300 mg/l and 800 mg/l, respectively, or more when measured in a resting cell method after an incubation period of 20 hours (claimed).

MC CPI: B03-F; B04-C01G; B04-E02F; B04-E03F; B04-E06; B04-E08; B04-F0100E; B04-F1000E; B04-N03C; B04-N03C0E; B10-A07; B11-A01A; D05-A04; D05-C10; D05-H12; D05-H14; D05-H17A6

TECH

BIOLOGY - The microorganism is selected from Pseudomonas, Pantoea, Escherichia, Corynebacterium, Ketogulonicigenium and acetic acid bacteria such as Gluconobacter, Acetobacter or Gluconacetobacter (preferably Acetobacter aceti, Gluconobacter frateurii, Gluconobacter cerinus, Gluconobacter thailandicus, Gluconobacter oxydans, especially Gluconobacter oxydans (DSM 17078)).

L86 ANSWER 35 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2006-578094 [59] WPIX Full-text
DNC C2006-179189 [59]
TI New respiratory chain system associated gene 10 encoding proteins involved in L-***ascorbic acid*** biosynthesis for use as a biotechnological tool in production of vitamin C from microorganisms
DC B04; D16
IN SHINJOH M
PA (STAM-C) DSM IP ASSETS BV
CYC 111
PI WO 2006084645 A1 20060817 (200659)* EN 47[0]
ADT WO 2006084645 A1 WO 2006-EP1011 20060206
PRAI EP 2005-405134 20050211
IPCI C07K0014-195 [I,A]; C07K0014-195 [I,C]; C12N0015-31 [I,A]; C12N0015-31 [I,C]; C12N0015-63 [I,A]; C12N0015-63 [I,C]; C12N0005-10 [I,A]; C12N0005-10 [I,C]; C12P0017-02 [I,C]; C12P0017-04 [I,A]
AB WO 2006084645 A1 UPAB: 20060914

NOVELTY - A polynucleotide, designated RCS 10 and encoding a protein involved in the respiratory chain system (RCS) is new.

DETAILED DESCRIPTION - A polynucleotide, designated RCS 10 and encoding a protein involved in the respiratory chain system (RCS), is new and is selected from:

(a) a polynucleotide encoding a polypeptide having a sequence of 158 amino acids, given in the specification (SEQ ID NO: 2);

(b) a polynucleotide having a sequence of 477 nucleotides, given in the specification (SEQ ID NO: 1);

(c) a polynucleotide having a nucleotide sequence obtainable by nucleic acid amplification such as polymerase chain reaction using genomic DNA from a microorganism as a template and a primer set having a sequence of 20 nucleotides, given in the specification (SEQ ID NO: 3 or SEQ ID NO: 4);

(d) a polynucleotide comprising a nucleotide sequence encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of groups (a)-(c), where in the derivative at least one amino acid residue is conservatively substituted compared to the polypeptide and the fragment or derivative has the activity of a RCS 10 polypeptide;

(e) a polynucleotide, the complementary strand of which hybridizes under stringent conditions to a polynucleotide of groups (a)-(d) and which encodes a RCS 10 polypeptide; and

(f) a polynucleotide which is greater than or equal to 70 (preferably 85, 90 or 95)% identical to a polynucleotide of groups (a)-(d) and which encodes a RCS 10 polypeptide or its complementary strand.

INDEPENDENT CLAIMS are also included for:

(1) a vector containing the polynucleotide;

(2) a microorganism genetically engineered with the polynucleotide or with the vector;

(3) a polypeptide encoded by the polynucleotide;

(4) producing cells capable of expressing the polypeptide comprising genetically engineering the cells with the new polynucleotide or the vector of (1);

(5) use of the polynucleotide for the production of vitamin C;

(6) producing a disrupted endogenous RCS 10 gene in microorganism having the polynucleotide;

(7) production of the polypeptide in the microorganism;

(8) production of vitamin C producing microorganism, which contains an endogenous gene having the polynucleotide; and

(9) production of vitamin C with the microorganism or directly from D-sorbitol or L-sorbose, where Vitamin C and/or ***2-keto -L-gulonic acid*** (2-***KGA***) is
isolated as the fermentation product.

USE - The polynucleotide is used in the production of vitamin C from microorganisms (claimed).

ADVANTAGE - The gene improves the yield and/or efficiency of production of vitamin C and ***2-keto-L- gulonic acid*** (2-***KGA***) production by the microorganism. The microorganism is capable of directly producing Vitamin C from D-sorbitol and L-sorbose in quantities greater than or equal to 300 mg/l and 800 mg/l respectively when measured in a resting cell method after an incubation period of 20 hours (claimed).

MC CPI: B03-F; B04-C01G; B04-E02F; B04-E03F; B04-E06; B04-E08; B04-F0100E; B04-F1000E; B04-N03C; B04-N03C0E; B10-A07A; B10-A07B; B10-A07C; B11-A01A; D05-A04; D05-C08; D05-C10; D05-H12A; D05-H12E; D05-H14; D05-H17A6

TECH

BIOLOGY - The microorganism is selected from Pseudomonas, Pantoea, Escherichia, Corynebacterium, Ketogulonicigenium and acetic acid bacteria such as Gluconobacter, Acetobacter or Gluconacetobacter (preferably Acetobacter aceti, Gluconobacter frateurii, Gluconobacter cerinus, Gluconobacter thailandicus, Gluconobacter oxydans, especially Gluconobacter oxydans (DSM 17078)).

L86 ANSWER 36 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2006-569348 [58] WPIX Full-text
DNC C2006-176885 [58]
TI New vitamin C production system associated gene 07 encoding proteins involved in L-***ascorbic acid*** biosynthesis for use as a biotechnological tool in production of vitamin C from microorganisms
DC B04; D16
IN SHINJOH M
PA (STAM-C) DSM IP ASSETS BV
CYC 111
PI WO 2006084643 A2 20060817 (200658)* EN 42[0]
ADT WO 2006084643 A2 WO 2006-EP1009 20060206
PRAI EP 2005-405098 20050211
IPCI C07K0014-195 [I,A]; C07K0014-195 [I,C]; C12N0015-31 [I,A]; C12N0015-31 [I,C]; C12N0015-63 [I,A]; C12N0015-63 [I,C]; C12N0005-10 [I,A]; C12N0005-10 [I,C]; C12P0017-02 [I,C]; C12P0017-04 [I,A]

AB WO 2006084643 A2 UPAB: 20060911

NOVELTY - A polynucleotide encoding a protein involved in a vitamin C production system (VCS), where the polynucleotide is designated VCS 07, is new.

DETAILED DESCRIPTION - A polynucleotide encoding a protein involved in a vitamin C production system (VCS) is new. The polynucleotide is designated VCS 07.

The polynucleotide is selected from:

(a) a polynucleotide encoding a polypeptide having a sequence of 170 amino acids, given in the specification (SEQ ID NO: 2);

(b) a polynucleotide having a sequence of 513 nucleotides, given in the specification (SEQ ID NO: 1);

(c) a polynucleotide having a nucleotide sequence obtainable by nucleic acid amplification such as polymerase chain reaction, using genomic DNA from a microorganism as a template and a primer set having a sequence of 20 nucleotides, given in the specification (SEQ ID NO: 3 or SEQ ID NO: 4);

(d) a polynucleotide comprising a nucleotide sequence encoding a fragment or derivative of a polypeptide encoded by a polynucleotide of groups (a) - (c), where in the derivative at least one amino acid residue is conservatively substituted compared to the polypeptide and the fragment or derivative has the activity of a VCS 07 polypeptide;

(e) a polynucleotide, the complementary strand of which hybridizes under stringent conditions to a polynucleotide of groups (a) - (d) and which encodes a VCS 07 polypeptide; and

(f) a polynucleotide which is at least 70 (preferably 85, 90 or 95)% identical to a polynucleotide of groups (a) - (d) and which encodes a VCS 07 polypeptide; or its complementary strand.

INDEPENDENT CLAIMS are also included for:

(1) a vector containing the polynucleotide;

(2) a microorganism genetically engineered with the polynucleotide or with the vector;

(3) a polypeptide encoded by the polynucleotide;

(4) production of the polypeptide in the microorganism;

(5) producing cells capable of expressing the polypeptide of (3) comprising genetically engineering the cells with the new polynucleotide or vector of (1);

(6) producing an disrupted endogenous VCS 07 gene in a microorganism having the polynucleotide;

(7) production of a vitamin C producing microorganism, which contains an endogenous gene having the polynucleotide; and

(8) production of vitamin C with the microorganism or directly from D-sorbitol or L-sorbose, where vitamin C and/or ***2-keto -L-gulonic acid*** (2-***KGA***) is
isolated as the fermentation product.

USE - In production of vitamin C from microorganisms (claimed).

ADVANTAGE - The gene improves the yield and/or efficiency of production of vitamin C and ***2-keto-L- gulonic acid*** (2-***KGA***) produced by the microorganism. The microorganism is capable of directly producing Vitamin C from D-sorbitol and L-sorbose in quantities of 300 mg/l and 800 mg/l, respectively, or more when measured in a resting cell method after an incubation period of 20 hours (claimed).

MC CPI: B03-F; B04-C01G; B04-E02F; B04-E03F; B04-E06; B04-E08; B04-F0100E; B04-F1000E; B04-N03C; B04-N03C0E; B10-A07C; B11-A01A; D05-A04; D05-C08; D05-C10; D05-H12A; D05-H12E; D05-H14; D05-H17A6

TECH

BIOLOGY - The microorganism is selected from Pseudomonas, Pantoea, Escherichia, Corynebacterium, Ketogulonicigenium and acetic acid bacteria such as Gluconobacter, Acetobacter or Gluconacetobacter (preferably Acetobacter aceti, Gluconobacter frateurii, Gluconobacter cerinus, Gluconobacter thailandicus, Gluconobacter oxydans, especially

Gluconobacter oxydans (DSM 17078)).

L86 ANSWER 37 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2005-196101 [20] WPIX Full-text
CR 2005-182375
DNC C2005-062221 [20]
TI Production of vitamin C involves converting substrate into vitamin C in medium comprising resting cells of microorganism
DC B03; D16; E13
IN BERRY A; LEE C; MAYER A F; SHINJOH M
PA (STAM-C) DSM IP ASSETS BV
CYC 106
PI WO 2005017172 A1 20050224 (200520)* EN 31[0] C12P017-04
ADT WO 2005017172 A1 WO 2004-CH512 20040816
PRAI EP 2003-17677 20030814
IPCR C12N0001-21 [I,A]; C12N0001-21 [I,C]; C12N0015-53 [I,A]; C12N0015-53 [I,C]; C12N0009-02 [I,A]; C12N0009-02 [I,C]; C12N0009-04 [I,A]; C12N0009-04 [I,C]; C12P0017-02 [I,C]; C12P0017-04 [I,A]; C12P0007-40 [I,C]; C12P0007-60 [I,A]
AB WO 2005017172 A1 UPAB: 20050708
NOVELTY - Vitamin C is produced by converting a substrate into vitamin C in a medium comprising resting cells of a microorganism.
USE - For producing vitamin C (or L-***ascorbic acid***).
ADVANTAGE - The inventive process is capable of performing the direct conversion of the substrate into vitamin C, and provides higher yields of vitamin C.
MC CPI: B03-F; B11-A01; D05-C10; D05-H01; D05-H04; D05-H05; D05-H08; E07-A02B; E11-M
TECH
ORGANIC CHEMISTRY - Preferred Process: The process further comprises culturing the microorganism under conditions which enable growth; changing the conditions such that the growth rate of the microorganism is reduced leading to the resting cells; producing the vitamin C from the substrate using the resting cells; isolating vitamin C from the medium; and optionally performing one or more purification steps.
The culturing and producing steps are performed in at least 2 separate vessels. They are not separated by any washing and/or isolation step. The microorganism is grown in batch mode, fed-batch mode, continuous mode, or semi-continuous mode. The producing step is performed in batch mode, fed-batch mode, continuous mode, or semi-continuous mode. The yield of produced vitamin C is at least 1.8 g/L.
The process uses the microorganism capable of producing both vitamin C and ***2-keto-L-gulonic acid*** from
the substrate, where the ratio between the concentration of vitamin C and ***2-keto-L-gulonic acid*** is
more than 0.1. All purification steps are performed in an aqueous environment.
Preferred Component: The substrate is D-glucose, D-sorbitol, L-sorbose, L-sorbosone, 2-keto-L-gulonate, D-gluconate, 2-keto-D-gluconate, or 2,5-diketo-gluconate.
BIOTECHNOLOGY - Preferred Component: The microorganism is yeast, algae, or bacteria. It is preferably Candida, Saccharomyces, Zygosaccharomyces, Scyzosaccharomyces, Kluyveromyces, Chlorella, Gluconobacter, Acetobacter aceti, Pantoea, Cryptococcus, Pseudomonas, or Escherichia.
Preferred Property: The density of the resting cells in the medium measured as optical density (OD) at 600 nm is at least 10.

L86 ANSWER 38 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2003-289978 [28] WPIX Full-text
DNC C2003-075308 [28]

TI Fermentation of sorbitol into sodium 2-keto-L-gulonate and subsequent removal of microorganisms and proteins

DC B03; D16; E13

IN DE TROOSTEMBERGER J M G; DE TROOSTEMBERGH J; DE TROOSTEMBERGH J C M P G; DE TROOSTEMBERGH J M G; DEBONNE I A; OBYN W R; PEUZET C G; PEUZET C G M; DE TROOSTEMBERGH J M

PA (CERE-N) CERESTAR HOLDING BV; (DTRO-I) DE TROOSTEMBERGH J M G; (DEBO-I) DEBONNE I A; (OBYN-I) OBYN W R; (PEUZ-I) PEUZET C G M

CYC 99

PI	WO 2003016508	A2 20030227 (200328)*	EN	32[0]	
	EP 1417324	A2 20040512 (200431)	EN		
	AU 2002331380	A1 20030303 (200452)	EN		C12N001-20
	US 20050019881	A1 20050127 (200509)	EN		
	CN 1571846	A 20050126 (200530)	ZH		C12P007-60
	BR 2002011941	A 20050510 (200533)	PT		
	AU 2002331380	A8 20051020 (200615)	EN		C12P007-60
	US 7091013	B2 20060815 (200654)	EN		

ADT WO 2003016508 A2 WO 2002-EP8623 20020802; AU 2002331380 A1 AU 2002-331380 20020802; AU 2002331380 A8 AU 2002-331380 20020802; BR 2002011941 A BR 2002-11941 20020802; CN 1571846 A CN 2002-820425 20020802; EP 1417324 A2 EP 2002-767304 20020802; EP 1417324 A2 WO 2002-EP8623 20020802; US 20050019881 A1 WO 2002-EP8623 20020802; BR 2002011941 A WO 2002-EP8623 20020802; US 20050019881 A1 US 2004-486969 20040929; US 7091013 B2 WO 2002-EP8623 20020802; US 7091013 B2 US 2004-486969 20040929

FDT EP 1417324 A2 Based on WO 2003016508 A; AU 2002331380 A1 Based on WO 2003016508 A; BR 2002011941 A Based on WO 2003016508 A; AU 2002331380 A8 Based on WO 2003016508 A; US 7091013 B2 Based on WO 2003016508 A

PRAI GB 2001-19864 20010815

IC ICM C12P007-60
ICS C12R001-01; C12R001-07

IPCI C12N0001-20 [N,A]; C12N0001-20 [N,C]; C12P0007-40 [I,C]; C12P0007-60 [I,A]

IPCR C12P0039-00 [I,A]; C12P0039-00 [I,C]; C12P0007-40 [I,C]; C12P0007-60 [I,A]

AB WO 2003016508 A2 UPAB: 20060119

NOVELTY - Fermentation of sorbitol into sodium 2-keto-L-gulonate and removing microorganisms and proteins.

DETAILED DESCRIPTION - Production process of sodium 2-keto-L-gulonate comprises:

(a) fermentatively converting sorbitol (II) into at least 50g/l sodium 2-keto-L-gulonate (III);

(b) removing the microorganisms from the fermentation broth;

(c) converting (III) into ***2-keto-L- gulonic acid*** (IV) and removing proteins to a concentration below 2400 ppm (measured as nitrogen on dry substance) to obtain a pure fermentation broth and/or adjusting the pH to avoid the formation of vitamin C in concentrations higher than 3% (based on dry substance) during the subsequent evaporation of water;

(d) evaporating water to obtain a concentrated purified fermentation broth; and

(e) recovering ***2-keto-L- gulonic acid*** monohydrate (I) crystals with a yield of at least 80%.

INDEPENDENT CLAIMS are also included for the following:

(1) a mixture culture of Gluconobacter oxydans, preferably SCB 329 deposited as LMG P-20356, and Bacillus thuringiensis, preferably SCB 933 TCV 393 deposited as LMG P-20355 for producing (IV);

(2) Gluconobacter oxydans SCB 329 deposited as LMG P-20356 for producing (IV); and

(3) Bacillus thuringiensis SCB 933 TCV 393 deposited as LMG P-20355 for producing (IV).

USE - The products are intermediates for L-***ascorbic acid*** (vitamin C).

ADVANTAGE - The product is prepared in high yields.

MC CPI: B04-F10A; B04-F10B1; B07-A02B; B11-A01; B11-B; D05-A04; D05-C; D05-H04; E07-A02H; E11-M; E11-Q01

TECH
ORGANIC CHEMISTRY - Preferred Process: Step (c) comprises removal of proteins by ion exchange treatment using a cation exchange resin. The process preferably comprises:
(i) preparing a fermentation culture medium comprising a nitrogen source and sorbitol as a carbon source;
(ii) inoculating with microorganisms for converting sorbitol into L-sorbose;
(iii) allowing the microorganisms to grow until at least 100 g/l L-sorbose is obtained;
(iv) terminating the conversion of sorbitol into L-sorbose;
(v) inoculating with microorganisms for converting the L-sorbose into (III);
(vi) allowing the microorganisms to grow until at least 50 g/l (III) are obtained in the fermentation medium;
(vii) removing the microorganisms;
(viii) converting (III) into (IV) with cation exchange resin and removing proteins to a concentration below 2000 ppm and/or adjusting the pH to avoid the formation of vitamin C in a concentration not higher than 2.5% during the subsequent step;
(ix) evaporating water; and
(x) recovering (I) crystals by crystallization.
In step (vii) the filtration comprises microfiltration. In step (viii) the purified broth comprises not more than 1800ppm proteins and the pH is higher than 1.5 and the recovery of (I) is at least 85% yield. In step (v) the microorganism comprises (1) as above, present at an initial ratio of Gluconobacter colonies to Bacillus colonies of 300:1-1:10.
BIOLOGY - Preferred Ratios: The ratio of Gluconobacter colonies to Bacillus colonies is initially 25:1.

L86 ANSWER 39 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2002-583565 [62] WPIX Full-text
CR 2002-557684
DNC C2002-164980 [62]
TI Continuous production of L-***ascorbic acid***, comprises heating an aqueous solution of 2-keto-L-gluconic acid and continuous removal of product and recycling of unreacted 2-keto-L-gluconic acid
DC B03; E13
IN ARUMUGAM B; ARUMUGAM B K; COLLINS N; COLLINS N A; CUSHMAN M; CUSHMAN M R; MACIAS T; MACIAS T L; PERRI S; PERRI S T; POWELL J; POWELL J E G; SINK C; SINK C W
PA (ARUM-I) ARUMUGAM B K; (COLL-I) COLLINS N A; (CUSH-I) CUSHMAN M R; (EACH-C) EASTMAN CHEM CO; (MACI-I) MACIAS T L; (PERR-I) PERRI S T; (POWE-I) POWELL J E G; (SINK-I) SINK C W
CYC 97
PI

WO 2002051826	A1	20020704	(200262)*	EN	54[14]
US 20020151726	A1	20021017	(200270)	EN	
US 6610863	B2	20030826	(200357)	EN	
EP 1351949	A1	20031015	(200368)	EN	
BR 2001016451	A	20030930	(200373)	PT	
AU 2002231170	A1	20020708	(200427)	EN	
JP 2004516318	W	20040603	(200436)	JA	83
MX 2003005640	A1	20031101	(200468)	ES	
EP 1351949	B1	20050518	(200538)	EN	
DE 60110932	E	20050623	(200543)	DE	
DE 60110932	T2	20060119	(200612)	DE	
MX 234613	B	20060301	(200651)	ES	

ADT WO 2002051826 A1 WO 2001-US49609 20011221; US 20020151726 A1 Provisional

US 2000-257991P 20001222; US 6610863 B2 Provisional US 2000-257991P 20001222; BR 2001016451 A BR 2001-16451 20011221; DE 60110932 E DE 2001-610932 20011221; DE 60110932 T2 DE 2001-610932 20011221; EP 1351949 A1 EP 2001-991443 20011221; EP 1351949 B1 EP 2001-991443 20011221; DE 60110932 E EP 2001-991443 20011221; DE 60110932 T2 EP 2001-991443 20011221; US 20020151726 A1 US 2001-37126 20011221; US 6610863 B2 US 2001-37126 20011221; EP 1351949 A1 WO 2001-US49609 20011221; BR 2001016451 A WO 2001-US49609 20011221; JP 2004516318 W WO 2001-US49609 20011221; MX 2003005640 A1 WO 2001-US49609 20011221; EP 1351949 B1 WO 2001-US49609 20011221; DE 60110932 E WO 2001-US49609 20011221; DE 60110932 T2 WO 2001-US49609 20011221; AU 2002231170 A1 AU 2002-231170 20011221; JP 2004516318 W JP 2002-552921 20011221; MX 2003005640 A1 MX 2003-5640 20030620; MX 234613 B WO 2001-US49609 20011221; MX 234613 B MX 2003-5640 20030620

FDT DE 60110932 E Based on EP 1351949 A; DE 60110932 T2 Based on EP 1351949 A; EP 1351949 A1 Based on WO 2002051826 A; BR 2001016451 A Based on WO 2002051826 A; AU 2002231170 A1 Based on WO 2002051826 A; JP 2004516318 W Based on WO 2002051826 A; MX 2003005640 A1 Based on WO 2002051826 A; EP 1351949 B1 Based on WO 2002051826 A; DE 60110932 E Based on WO 2002051826 A; DE 60110932 T2 Based on WO 2002051826 A; MX 234613 B Based on WO 2002051826 A

PRAI US 2000-257991P 20001222
US 2001-37126 20011221

IC ICM C07D307-62

IPCI C07D0307-00 [I,C]; C07D0307-62 [I,A]

IPCR C07B0061-00 [I,A]; C07B0061-00 [I,C]; C07D0307-00 [I,C]; C07D0307-62 [I,A]

AB WO 2002051826 A1 UPAB: 20060120

NOVELTY - New process (I) for continuous production of L-***ascorbic acid***, comprises:

(A) heating an aqueous solution of 2-keto-L-gluconic acid (KLG); and

(B) continuous removal of product and recycling of unreacted KLG.

DETAILED DESCRIPTION - New process for continuous production of L-***ascorbic acid***, comprises:

(A) heating an aqueous solution of 2-keto-L-gluconic acid (KLG) or derivatives to form L-***ascorbic acid*** at a conversion of at most 100%;

(B) continuously removing a post-reaction solution, comprising unreacted KLG compound and L-***ascorbic acid***;

(C) continuously separating L-***ascorbic acid*** from unreacted KLG compound in the post-reaction solution to form an L- ***ascorbic acid*** rich solution and a solution rich in unreacted KLG compound; and

(D) continuously recycling the solution rich in KLG.

An INDEPENDENT CLAIM is also included for a system for manufacturing L-***ascorbic acid*** comprising:

(a) a reactor for conversion of KLG to L-***ascorbic acid***;

(b) a conduit for the continuous removal of a post-reaction solution comprising unreacted KLG and L-***ascorbic acid*** from the reactor;

(c) a separation system for continuously separating L- ***ascorbic acid*** product from unreacted KLG in to form an L-***ascorbic acid*** rich solution and a KLG rich solution;

(d) a conduit for transferring the KLG rich solution back to the reactor;

(e) a conduit for transferring fresh KLG to the reactor;

(f) a conduit for removing the L-***ascorbic acid*** rich solution for subsequent purification and/or storage;

(g) at least one pump to pump reactants and products through the system; and

(h) at least one valve for controlling pressure throughout the system.

USE - (I) is used for the production of L-***ascorbic acid*** (vitamin C).

ADVANTAGE - (I) provides a continuous process for producing L- ***ascorbic acid*** that minimizes decomposition of the L- ***ascorbic acid*** product formed and allows for unreacted starting material to be recycled back into the reaction mix.

The separation step is designed to provide an efficient and non-destructive isolation of unreacted KLG starting material so that the KLG can be further used for production of more L-***ascorbic acid*** to provide high yields.

DESCRIPTION OF DRAWINGS - The figure shows a system for the production of L-***ascorbic acid***.

Reactor (108)
Tank for each feed (102)
SMB chromatographic system (122)
KLG Recycling tank (126)

MC CPI: B03-F; E07-A02B

TECH

INORGANIC CHEMISTRY - Preferred Method: Step (A) may be carried out in the absence or presence of an added catalyst and operated at a pressure of 1-30 atmospheres at 40-220 degreesC.
Conversion of step (A) is 5-80, preferably 20-20, especially 30-60%.
Preferred Catalyst: Catalyst is a mineral acid, e.g. HCl, HBr, H3PO4, or H2SO4.
POLYMERS - Preferred Catalyst: Catalyst is an acid resin catalyst, e.g. a sulfonated polystyrene cation exchange resin.
Preferred Method: A step of clarifying the post-reaction solution after step (B) and before step (C) may be carried out by adsorption with a polymeric resin or activated carbon material.
ORGANIC CHEMISTRY - Preferred Solution: Aqueous solution of step (A) may comprise 1-40, preferably 5-20, especially 5-15 weight.% KLG and may be from a stream from a fermentation process for producing KLG.
L-***ascorbic acid*** rich solution of step (C), comprises 75, preferably, 85, especially 90 weight.% L-***ascorbic acid***. KLG rich solution of step (C), comprises 75, preferably, 85, especially 90 weight.% KLG.
Preferred Method: The method may further comprise step (E), comprising:
(i) purification of L-***ascorbic acid*** from the L-***ascorbic acid*** rich solution;
(ii) separation of L-***ascorbic acid*** from the L-***ascorbic acid*** solution by crystallization, chromatography or electrodialysis.
Steps (A)-(D) provides at least a 50, preferably 60, especially 65 mole percent yield of L-***ascorbic acid***.

L86 ANSWER 40 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 2002-453442 [48] WPIX Full-text
DNC C2002-128887 [48]
TI Mutants of Gluconobacter oxydans, Ketogulonogenium robustum and Bacillus sereus, useful for providing single stage fermentation of D-sorbitol to L-sorbose to 2-keto-L-gluconic acid
DC B03; B04; D16; E13
IN EDDINGTON J M; KOWZIC R L; LIAW H J; YANG Y
PA (ARCH-C) ARCHER-DANIELS MIDLAND CO
CYC 1
PI US 6387654 B1 20020514 (200248)* EN 8[4] C12P039-00
ADT US 6387654 B1 US 2000-565117 20000504
PRAI US 2000-565117 20000504
IPCR C12P0007-40 [I,C]; C12P0007-60 [I,A]
AB US 6387654 B1 UPAB: 20050526
NOVELTY - A biologically pure culture of a microorganism strain comprising all the identifying characteristics of NRRL B-30265, B-30266, B-30267 or B-30268, or a mutant derived from that strain, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a microorganism culture system comprising a mixture formed from a biologically pure cultures of microorganism having all the identifying characteristics of strains NRRL B-30266 and NRRL B-30265, which is capable of producing at least 40 g/l of 2-keto-L-gluconic acid from D-sorbitol;

(2) producing 2-keto-L-gluconic acid, comprising culturing a microorganism strain comprising all the characteristics of strain NRRL B-30265, or its mutant capable of producing 40 g/l 2-keto-L-gluconic acid, in a mixed culture with a microorganism strain capable of converting D-sorbitol to L-sorbose; and

(3) transforming the strain comprising inserting a vector into the strain.

USE - The microorganisms are used in fermentation to produce 2-keto-L-gluconic acid.

ADVANTAGE - Unlike prior art fermentation of D-sorbitol to 2-keto-L-gluconic acid, the method of the invention uses only a single step with organisms performing both steps being present in the same culture.

MC CPI: B04-F1000E; B10-C04B; B11-A01; D05-C; D05-H14A1; E10-C04B; E11-M

TECH

BIOTECHNOLOGY - Preferred Culture: The pure culture may comprise a vector, preferably one encoding a marker gene, particularly one which confers antibiotic resistance, preferably to ampicillin, chloramphenicol, erythromycin, kanamycin, spectinomycin, streptomycin or tetracycline. Preferably the vector comprises an exogenous promoter and terminator of transcription, and between the two a discrete series of endonuclease restriction sites.

Preferred Process: The microorganism capable of converting D-sorbitol to L-sorbose is preferably of the genus Gluconobacter or Acetobacter, most preferably being Gluconobacter oxydans American Type Culture Collection (ATCC) 621 or its mutant. The mutant is preferably selected from media containing at lest 100 g/l L-sorbose and is most preferably NRRL B-30266. The 2-keto-L-gluconic acid is recovered from the medium as a salt and the process preferably further comprises converting the 2-keto-L-gluconic acid to ***ascorbic acid*** or a salt. Culture is preferably performed at pH 5.0-9.0 and 5-36 degrees C. The D-sorbitol is present in the medium at 20-250 g/l. Ratio of NRRL B-30265: L-sorbose producing strain is from 10:1 to 1:10. The culture preferably comprises at least one additional microorganism, preferably a member of the genus Aureobacterium, Corynebacterium, Bacillus, Brevibacterium, Pseudomonas, Proteus, Enterobacter, Citrobacter, Erwinia, Xanthomonas or Flavobacterium, more preferably Bacillus cereus, most preferably NRRL-B-30267 or its mutant which is incapable of producing spores, preferably where the mutant is NRRL B-30268. Preferably the medium further comprises soybean products, particularly soy flour, soy protein or its hydrolysate, soy peptone, soluble soy isolates, soy whey or soy molasses, most preferably soy isolates or whey. Isolation: K. Ketogulonogenium robustum was mutagenised with N'-nitro-nitrosoguanidine (NTG) to give strain NRRL B-30265, Gluconobacter oxydans was mutagenised with NTG to give strain NRRL B-30266 and Bacillus cereus was mutagenised with NTG to give NRRL B-30267 and the non-spore forming strain NRRL B-30268.

L86 ANSWER 41 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2002-240308 [29] WPIX Full-text

DNC C2002-072323 [29]

TI Novel bacterial strains belonging to genera Gluconobacter, Ketogulonogenium and Bacillus useful for producing ***2-keto-L-gulonic acid*** from D-sorbitol via L-sorbose by fermentation

DC B05; D16; E17

IN EDDINGTON J M; KOWZIC R L; LIAW H J; YANG Y
PA (ARCH-C) ARCHER-DANIELS MIDLAND CO
CYC 90
PI WO 2001083798 A1 20011108 (200229)* EN 44[4] C12P007-60
AU 2000046957 A 20011112 (200229) EN
EP 1278879 A1 20030129 (200310) EN C12P007-60
AU 2000246957 B2 20050414 (200530) EN
ADT WO 2001083798 A1 WO 2000-US12037 20000504; AU 2000046957 A AU 2000-46957 20000504; AU 2000246957 B2 AU 2000-246957 20000504; EP 1278879 A1 EP 2000-928775 20000504; AU 2000046957 A WO 2000-US12037 20000504; EP 1278879 A1 WO 2000-US12037 20000504
FDT AU 2000246957 B2 Previous Publ AU 2000246957 A; AU 2000046957 A Based on WO 2001083798 A; EP 1278879 A1 Based on WO 2001083798 A; AU 2000246957 B2 Based on WO 2001083798 A
PRAI WO 2000-US12037 20000504
IC ICM C12P007-60
ICS C12N001-20
IPCR C12P0007-40 [I,C]; C12P0007-60 [I,A]

AB WO 2001083798 A1 UPAB: 20060119

NOVELTY - A biologically pure culture (I) of microorganism strain comprising the identifying characteristics of a strain such as Ketogulonogenium robustum NRRL B-30265 (ADM 178-49) (M1), Gluconobacter oxydans NRRL B-30266 (ADM 205-95) (M2), Bacillus cereus NRRL B-30267 (ADM C12B) (M3), B.cereus NRRL B-30268 (ADM 1A9) (M4), or mutants derived from theses strains, is new.

DETAILED DESCRIPTION - INDEPENDENT CLAIMS are also included for the following:

(1) a microorganism culture system (II) comprising a mixture formed from a biologically pure culture of a microorganism strain having the identifying characteristics of (M2) and a biologically pure culture of a microorganism strain having the identifying characteristics of (M1), where the culture system is capable of producing at least about 40 g/l of ***2-keto-L-gulonic acid*** (2-KLG) from D-sorbitol; and

(2) transforming a strain by inserting a vector into the strain.

USE - (I) having the identifying characteristics of (M1) or its mutant, is useful for producing 2-KLG which involves culturing (I) having the identifying characteristics of (M1) or its mutant, in mixed culture with a microorganism strain capable of converting D-sorbitol to L-sorbose in a medium containing D-sorbitol such that the D-sorbitol is converted to 2-KLG; and recovering the 2-KLG. The microorganism strain capable of converting a D-sorbitol to L-sorbose is preferably G.oxydans ATCC 621 or its mutant derived from the strain. The mutant derived from G.oxydans ATCC 621 is (M2) which is selected from media containing at least 100 g/l of L-sorbose. The microorganism having the identifying characteristics of (M1) preferably corresponds to (M1), and the microorganism strain capable of converting D-sorbitol to L-sorbitol is (M2). The mixed culture is capable of producing at least 40 g/l of 2-KLG from D-sorbitol. The 2-KLG is recovered as its salt from the medium and the recovered salt is converted to ***ascorbic acid*** or its salt. The microorganisms are cultured at a pH of about 5-9, and at a temperature of 5-36 degreesC. D-sorbitol is provided in the medium at a concentration of 20-250 g/l of medium. The inoculum ratio of (I) having identifying characteristics of (M1) to the L-sorbose producing strain is about 10:1 to 1:10. Preferably, the mixed culture comprises at least one additional microorganism strain of the genus Aureobacterium, Corynebacterium, Bacillus, Brevibacterium, Pseudomonas, Proteus, Enterobacter, Citrobacter, Erwinia, Xanthomonas and Flavobacterium, preferably B.cereus strain NRRL B-30267 or its mutant derived from the strain, where the mutant is selected to be incapable of producing the spores and is most preferably NRRL B-30268. The medium further comprises a soybean product such as soyflour, soyprotein and its hydrolysate, soy peptone, soluble soy isolates, soy whey or soy molasses. The

products such as soluble soy isolates or soy whey are derived from the processing of soybeans (all claimed).

ADVANTAGE - The method involving (M1) and (M2) for producing *2-keto-L-gulonic acid* (2-KLG) is simpler, having shorter fermentation with lower cost and higher yield for the production of 2-KLG from D-sorbitol in comparison with the conventional methods.

MC CPI: B04-F01; B04-F0100E; B04-F10A; B04-F10A0E; B04-F10B1; B07-A02A; B10-A07; D05-C10; D05-H04; D05-H08; D05-H12E; D05-H14A1; E07-A02B; E10-A07; E11-A; E11-E; E11-M

TECH

BIOTECHNOLOGY - Preferred Culture: (I) comprises a marker gene which comprises a nucleotide sequence which operatively directs synthesis of a protein conferring antibiotic resistance in a host cell. Preferably, the marker gene provides resistance to antibiotics such as ampicillin, chloramphenicol, erythromycin, kanamycin, spectinomycin, streptomycin or tetracycline. The vector further comprises an exogenous terminator of transcription, an exogenous promoter, and a discrete series of restriction endonuclease recognition sites, the series being between the promoter and the terminator.

L86 ANSWER 42 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 2002-088910 [12] WPIX Full-text

DNC C2002-027307 [12]

TI Recovery of organic acid or metal salt from alcoholic phase, comprises contacting alcoholic phase with water to form aqueous phase containing a portion of organic acid or its metal salt

DC B03; D16; E13

IN COLLINS N; COLLINS N A; PERRI S; PERRI S T; COLLINS A; PERRI T

PA (EACH-C) EASTMAN CHEM CO

CYC 25

PI	US 6320061	B1 20011120 (200212)*	EN	11[4]		
	WO 2001094288	A2 20011213 (200212)	EN			
	EP 1286944	A2 20030305 (200319)	EN			
	BR 2001011412	A 20030617 (200347)	PT			
	CN 1433394	A 20030730 (200365)	ZH			C07C051-48
	JP 2003535837	W 20031202 (200382)	JA	28		C07D307-62
	MX 2002011952	A1 20030401 (200415)	ES			
	MX 232773	B 20051208 (200637)	ES			C07C051-00
	EP 1286944	B1 20060913 (200661)	EN			
	DE 60123046	E 20061026 (200672)	DE			
	DE 60123046	T2 20061228 (200702)	DE			

ADT US 6320061 B1 US 2000-587752 20000605; BR 2001011412 A BR 2001-11412 20010525; CN 1433394 A CN 2001-810708 20010525; DE 60123046 E DE 2001-623046 20010525; EP 1286944 A2 EP 2001-939553 20010525; EP 1286944 B1 EP 2001-939553 20010525; DE 60123046 E EP 2001-939553 20010525; WO 2001094288 A2 WO 2001-US17191 20010525; EP 1286944 A2 WO 2001-US17191 20010525; BR 2001011412 A WO 2001-US17191 20010525; JP 2003535837 W WO 2001-US17191 20010525; MX 2002011952 A1 WO 2001-US17191 20010525; MX 232773 B WO 2001-US17191 20010525; EP 1286944 B1 WO 2001-US17191 20010525; DE 60123046 E WO 2001-US17191 20010525; JP 2003535837 W JP 2002-501806 20010525; MX 2002011952 A1 MX 2002-11952 20021203; MX 232773 B MX 2002-11952 20021203; DE 60123046 T2 DE 2001-623046 20010525; DE 60123046 T2 EP 2001-939553 20010525; DE 60123046 T2 WO 2001-US17191 20010525

FDT DE 60123046 E Based on EP 1286944 A; EP 1286944 A2 Based on WO 2001094288 A; BR 2001011412 A Based on WO 2001094288 A; JP 2003535837 W Based on WO 2001094288 A; MX 2002011952 A1 Based on WO 2001094288 A; MX 232773 B Based on WO 2001094288 A; EP 1286944 B1 Based on WO 2001094288 A; DE 60123046 E Based on WO 2001094288 A; DE 60123046 T2 Based on EP 1286944 A; DE 60123046 T2 Based

on WO 2001094288 A
PRAI US 2000-587752 20000605
IC ICM C07C051-00; C07D307-62
ICA C12P007-60
IPCI C07C0051-42 [I,C]; C07C0051-42 [I,C]; C07C0051-48 [I,A]; C07C0051-48 [I,A]; C07C0053-00 [I,A]; C07C0053-00 [I,A]; C07C0053-00 [I,C]; C07C0055-00 [I,A]; C07C0055-00 [I,A]; C07C0055-00 [I,C]; C07C0059-00 [I,A]; C07C0059-00 [I,A]; C07C0059-00 [I,C]; C07D0307-00 [I,C]; C07D0307-00 [I,C]; C07D0307-62 [I,A]; C07D0307-62 [I,A]
IPCR C07D0307-00 [I,C]; C07D0307-62 [I,A]; C12P0007-40 [I,C]; C12P0007-60 [I,A]
AB US 6320061 B1 UPAB: 20050524

NOVELTY - An alcoholic phase, comprising organic acid or its metal salt and alcohol, contacted with water under predetermined conditions to provide an aqueous phase containing at least a portion of organic acid or its metal salt, where the weight ratio of water:alcohol in aqueous phase is 50:50-97:3, and at least a portion of organic acid or its metal salt is recovered from aqueous phase, is new.

DETAILED DESCRIPTION - An alcoholic phase comprises organic acid selected from ***ascorbic acid*** and/or erythorbic acid or its metal salt(s), and alcohol(s). The organic acid(s) or its metal salt(s) is partially soluble in the alcohol(s). The alcoholic phase is contacted with water under predetermined conditions to form an aqueous phase containing at least a portion of organic acid or metal salt(s). The weight ratio of water:alcohol in the aqueous phase is 50:50-97:3. At least a portion of the organic acid(s) or metal salt(s) is recovered from the aqueous phase. An INDEPENDENT CLAIM is also included for preparation of ***ascorbic acid*** or metal ascorbate from ***2-keto-L-gulonic acid*** (KLG) or its metal salt. KLG or its metal salt is esterified in a solvent comprising alcohol(s) and the formed ester is converted to metal ascorbate in the solvent. The exchange of at least a portion of alcohol(s) solvent with water is performed to provide aqueous metal ascorbate.

USE - For recovering organic acid or its metal salt from alcoholic phase.

ADVANTAGE - The organic acid such as ***ascorbic acid*** is effectively removed from the alcoholic phase by simple method. The recovery method is inexpensive.

DESCRIPTION OF DRAWINGS - The figure shows system for exchanging alcoholic phase with aqueous phase.

MC CPI: B03-F; D05-D; E07-A02B
TECH

ORGANIC CHEMISTRY - Preferred Method: The alcoholic phase is contacted with water at 40-100 degrees Centigrade under a pressure of 1-20 psia. The alcohol is removed in the vapor phase. The contact process is then performed in an evaporative chamber or distillation apparatus. The recovery process is performed by contacting the aqueous phase with sulfonic acid or cation exchange resin and further contacting the product with weak anion exchange or ***tertiary amine*** resin. The method further involves clarification of aqueous phase using carbon. The metal salt is an alkali or alkaline earth metal salt, preferably alkali metal salt. The alkali metal ascorbate is produced from KLG which is in the form of monohydrate or partial anhydride, or diacetone-***2-keto-L-gulonic acid*** (2,3- or 4,6-diisopropylidene-2-oxo-L-gulonic acid) monohydrate. KLG is produced by Reichstein process, protonation of metallated salt of KLG, hydrolysis of diacetone-***2-keto-L-gulonic acid*** (2,3- or 4,6-diisopropylidene-2-oxo-L-gulonic acid) monohydrate or hydrolysis of ester. The esterification of KLG is performed in presence of strong acid selected from sulfuric acid, hydrochloric acid and sulfonic acid. The conversion of KLG ester to ascorbate is performed using alkali metal base such as sodium (bi)carbonate, potassium

(bi)carbonate, calcium carbonate or sodium methylate, in an alcohol solution. The protonation of ascorbate is performed to maintain pH of 1.5-3.5 before contacting alcoholic phase with water. The protonation step comprises contacting the ascorbate with strong acid selected from sulfuric acid, hydrochloric acid and sulfonic acid. The metal salt of strong acid is removed by filtration, decantation or centrifugation before contact process. Preferred Acid: The organic acid such as ***ascorbic acid*** is preferably used.

L86 ANSWER 43 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1998-008897 [01] WPIX Full-text
DNC C1998-003223 [01]
TI Treating ***2-keto-L-gulonic acid*** with hydrolase to prepare ***ascorbic acid*** - useful as nutritional supplement, colour-fixing agent and flavouring
DC B03; B05; D13; D16; E16; E17
IN HUBBS J C; HUBUS J C
PA (EACH-C) EASTMAN CHEM CO
CYC 40
PI

WO 9743433	A1	19971120	(199801)*	EN	68[0]	
ZA 9704224	A	19980225	(199813)	EN	58	
AU 9730756	A	19971205	(199814)	EN		
US 5817490	A	19981006	(199847)	EN		
EP 938582	A1	19990901	(199940)	EN		
CN 1225686	A	19990811	(199950)	ZH		
BR 9709099	A	19990803	(199952)	PT		
US 6022719	A	20000208	(200014)	EN		
MX 9809558	A1	19990301	(200051)	ES		C12P017-04
US 6136575	A	20001024	(200055)	EN		
JP 2001505042	W	20010417	(200128)	JA	43	C12P017-04
US 6271006	B1	20010807	(200147)	EN		
EP 938582	B1	20030423	(200329)	EN		
DE 69721292	E	20030528	(200343)	DE		
CN 1412315	A	20030423	(200347)	ZH		C12P007-60
CN 1412316	A	20030423	(200347)	ZH		C12P007-60
CN 1113100	C	20030702	(200545)	ZH		C12P017-04
CN 1181206	C	20041222	(200618)	ZH		C12P007-60
CN 1182250	C	20041229	(200618)	ZH		C12P007-60
JP 3759621	B2	20060329	(200622)	JA	30	
IN 2000000108	I1	20050311	(200655)	EN		A61K000-00

ADT WO 9743433 A1 WO 1997-US8668 19970516; US 5817490 A Provisional US 1996-17879P 19960517; US 6022719 A Provisional US 1996-17879P 19960517; US 6136575 A Provisional US 1996-17879P 19960517; US 6271006 B1 Provisional US 1996-17879P 19960517; US 5817490 A US 1997-845295 19970425; US 6022719 A Div Ex US 1997-845295 19970425; US 6136575 A Div Ex US 1997-845295 19970425; US 6271006 B1 Div Ex US 1997-845295 19970425; ZA 9704224 A ZA 1997-4224 19970515; AU 9730756 A AU 1997-30756 19970516; BR 9709099 A BR 1997-9099 19970516; CN 1225686 A CN 1997-196510 19970516; CN 1412315 A Div Ex CN 1997-196510 19970516; CN 1412316 A Div Ex CN 1997-196510 19970516; CN 1113100 C CN 1997-196510 19970516; DE 69721292 E DE 1997-621292 19970516; EP 938582 A1 EP 1997-925690 19970516; EP 938582 B1 EP 1997-925690 19970516; DE 69721292 E EP 1997-925690 19970516; JP 2001505042 W JP 1997-541207 19970516; JP 3759621 B2 JP 1997-541207 19970516; EP 938582 A1 WO 1997-US8668 19970516; BR 9709099 A WO 1997-US8668 19970516; JP 2001505042 W WO 1997-US8668 19970516; EP 938582 B1 WO 1997-US8668 19970516; DE 69721292 E WO 1997-US8668 19970516; JP 3759621 B2 WO 1997-US8668 19970516; US 6022719 A US 1998-140933 19980827; US 6136575 A US 1998-146661 19980903; US 6271006 B1 US 1998-150515 19980909; MX 9809558 A1 MX 1998-9558 19981116; CN 1412315 A CN 2002-119967 19970516; CN 1181206 C CN 2002-119967 19970516; CN 1412316 A CN 2002-119969 19970516; CN

1182250 C CN 2002-119969 19970516; IN 2000000108 I1 IN 2000-DE108 20000208
FDT DE 69721292 E Based on EP 938582 A; US 6022719 A Div ex US 5817490 A; US 6136575 A Div ex US 5817490 A; US 6271006 B1 Div ex US 5817490 A; AU 9730756 A Based on WO 9743433 A; EP 938582 A1 Based on WO 9743433 A; BR 9709099 A Based on WO 9743433 A; JP 2001505042 W Based on WO 9743433 A; EP 938582 B1 Based on WO 9743433 A; DE 69721292 E Based on WO 9743433 A; JP 3759621 B2 Previous Publ JP 2001505042 W; JP 3759621 B2 Based on WO 9743433 A
PRAI US 1997-845295 19970425
US 1996-17879P 19960517
WO 1997-US8668 19970516
US 1998-140933 19980827
US 1998-146661 19980903
US 1998-150515 19980909
IC ICM A61K998-; C12P017-04
IPCR C07D [I,S]; C07D0307-00 [I,C]; C07D0307-62 [I,A]; C12N0009-14 [I,A]; C12N0009-14 [I,C]; C12N0009-16 [I,A]; C12N0009-16 [I,C]; C12N0009-18 [I,C]; C12N0009-20 [I,A]; C12N0009-52 [I,C]; C12N0009-56 [I,A]; C12N0009-78 [I,C]; C12N0009-84 [I,A]; C12P [I,S]
IPCI C12P0017-02 [I,C]
; C12P0017-02 [I,C]
; C12P0017-04 [I,A]
; C12P0017-04 [I,A]
; C12P0007-40 [I,C]
; C12P0007-40 [I,C]
; C12P0007-60 [I,A]
; C12P0007-60 [I,A]
; C12P0007-62 [I,A]
; C12P0007-62 [I,A]
; C12P0007-62 [I,C]
; C12P0007-62 [I,C]
AB WO 1997043433 A1 UPAB: 20060113
Preparing ***ascorbic acid*** (AsA), comprises contacting ***2-keto-L-gulonic acid*** (2KLGA), or its ester, with a hydrolase enzyme catalyst (I). Also claimed are: (1) mixture containing AsA prepared as above; (2) preparing 2KLGA, comprising contacting an aqueous solution of a 2KLGA ester, with (I); and (3) preparing a 2KLGA ester, comprising: (a) contacting an alcoholic solution of 2KLGA and an alcohol corresponding to an alkyl moiety of the 2KLGA ester, with (I); or (b) contacting an alcoholic solution of a 1st 2KLGA ester and an alcohol corresponding to an alkyl moiety of a 2nd 2KLGA ester, with (I).
USE - AsA can be used as a nutritional supplement, colour-fixing agent, flavouring, food preservative, oxidant in bread making, to induce abscision of citrus fruit and as analytical reducing agent.
ADVANTAGE - The method requires only mild conditions and provides high yield and product purity, with little, if any, by-product formation.
MC CPI: B03-F; B10-C04D; D03-H01; D03-H01B; D03-H01E; D03-H02E; D05-C03C; D05-H14; D05-H17A3; E07-A02B

L86 ANSWER 44 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1990-378057 [51] WPIX Full-text
DNC C1990-164686 [16]
TI Preparation of pure ***ascorbic acid*** from keto-L-gulonic acid - via keto-L-gulonic acid ester and sodium ascorbate, with purificn. using acid and basic resins
DC B03; E13
IN LE FUR I; LEFUR I; RICHARD J; RICHARD J P; WOLFF G
PA (RHON-C) RHONE POULENC RORER SA; (RHON-C) RHONE POULENC SANTE; (RHON-C) RHONE-POULENC BIOCHEMIE; (RHON-C) RHONE-POULENC SANTE
CYC 20

PI	EP 403351	A	19901219	(199051)*	EN		
	FR 2648136	A	19901214	(199106)	FR		
	HU 54131	T	19910128	(199109)	HU		
	PT 94354	A	19910208	(199109)	PT		
	CA 2018692	A	19901212	(199110)	EN		
	JP 03024068	A	19910201	(199111)	JA		
	SU 1833383	A3	19930807	(199508)	RU	7[0]	C07D307-62
	US 5391770	A	19950221	(199513)	EN	6[0]	C07D307-62
	EP 403351	B1	19950809	(199536)	FR	9[0]	C07D307-62
	DE 69021455	E	19950914	(199542)	DE		C07D307-62
	ES 2075887	T3	19951016	(199547)	ES		C07D307-62
	IE 69381	B	19960904	(199647)	EN		C07D307-62
	JP 2921927	B2	19990719	(199934)	JA	7	C07D307-62
	EP 403351	B2	20000823	(200041)	FR		C07D307-62
	KR 210636	B1	19990715	(200102)	KO		C07D307-62
	CA 2018692	C	20010508	(200129)	FR		C07D307-62

ADT EP 403351 A EP 1990-401592 19900611; FR 2648136 A FR 1989-7716 19890612; SU 1833383 A3 SU 1990-4830021 19900608; CA 2018692 C CA 1990-2018692 19900611; DE 69021455 E DE 1990-69021455 19900611; EP 403351 B1 EP 1990-401592 19900611; DE 69021455 E EP 1990-401592 19900611; ES 2075887 T3 EP 1990-401592 19900611; EP 403351 B2 EP 1990-401592 19900611; IE 69381 B IE 1990-2095 19900611; JP 03024068 A JP 1990-150081 19900611; JP 2921927 B2 JP 1990-150081 19900611; KR 210636 B1 KR 1990-8530 19900611; US 5391770 A Cont of US 1990-536461 19900612; US 5391770 A Cont of US 1991-796878 19911125; US 5391770 A Cont of US 1993-40589 19930331; US 5391770 A US 1993-171988 19931223

FDT DE 69021455 E Based on EP 403351 A; ES 2075887 T3 Based on EP 403351 A; JP 2921927 B2 Previous Publ JP 03024068 A

PRAI FR 1989-7716 19890612

IC ICM C07D307-62

IPCR C07D0307-00 [I,C]; C07D0307-62 [I,A]

AB EP 403351 A UPAB: 20060106

Preparation of ***ascorbic acid*** from ***2-keto L gulonic acid*** (2KLC-H) which comprises: (a) 2KLG-H, possibly in the form of the sodium salt, is esterified in the presence of a strong acid (sulphuric, hydrochloric or sulphonic acid). (b) The ester of 2KLG-H is transformed, possibly in situ, into sodium ascorbate by means of a mineral or organic base in an alcoholic solution. (c) Sodium ascorbate which pptes. is possibly separated. (d) The ***ascorbic acid*** is displaced from its salt by a strong acid operating in methanol or aq-methanol in which the sodium salt of the strong acid has low solubility. (e) The sodium salt of the strong acid is separated giving a methanolic or aq-methanolic solution of ***ascorbic acid*** from which the pure cpd. may be isolated. (f)(i) This solution may be passed through acid and basic resins and decolourised prior to crystallisation of the pure ***ascorbic acid*** which is separated by filtration. (ii) Alternatively the solution from (e) may be concentrate and the crude ***ascorbic acid*** separated then redissolved in water, methanol or aqueous-methanol. The solution is then passed through acid and basic resins and decolourised before crystallisation and separation of the pure ***ascorbic acid.*** (g) Alternatively the ***ascorbic acid*** may be displaced from its salt by treating the aqueous solution with a sulphonic resin and then crystallising the pure ***ascorbic acid*** from the decolourised aqueous solution.

ADVANTAGE - Method gives a pure form of ***ascorbic acid.*** @(8pp DWg.No.0/0)

MC CPI: B03-F; E07-A02B

Member(0007)

ABEQ SU 1833383 A3 UPAB 20060106

Prepn. of ***ascorbic acid*** from ***2-keto L gulonic acid*** (2KLC-H) which comprises: (a) 2KLG-H, possibly in the form of the sodium salt, is esterified in the presence of a strong acid (sulphuric, hydrochloric or sulphonic acid). (b)

The ester of 2KLG-H is transformed, possibly in situ, into sodium ascorbate by means of a mineral or organic base in an alcoholic soln.. (c) Sodium ascorbate which pptes. is possibly sepd.. (d) The ***ascorbic acid*** is displaced from its salt by a strong acid operating in methanol or aq-methanol in which the sodium salt of the strong acid has low solubility. (e) The sodium salt of the strong acid is sepd. giving a methanolic or aq-methanolic soln. of ***ascorbic acid*** from which the pure cpd. may be isolated. (f)(i) This soln. may be passed through acid and basic resins and decolourised prior to crystallisation of the pure ***ascorbic acid*** which is sepd. by filtration.
(ii) Alternatively the soln. from (e) may be conc. and the crude ***ascorbic acid*** sepd. then redissolved in water, methanol or aq.-methanol. The soln. is then passed through acid and basic resins and decolourised before crystallisation and sepn. of the pure ***ascorbic acid***. (g) Alternatively the ***ascorbic acid*** may be displaced from its salt by treating the aq. soln. with a sulphonic resin and then crystallising the pure ***ascorbic acid*** from the decolourised aq. soln..

ADVANTAGE - Method gives a pure form of ***ascorbic acid***.

Member(0008)
ABEQ US 5391770 A UPAB 20060106

Prepn. of ***ascorbic acid*** from ***alkali metal ascorbate comprises displacing*** ascorbic acid from methanol or aq/methanolic soln. of alkali metal ascorbate to form ascorbic acid soln. by addn. of strong acid to pH 1.5-3.5 at which pH the salt is only sparingly sol., then sepg. the salt; passing the soln. of ascorbic acid through sulphonic acid resin then tert-amine resin to remove residual alkali metal and strong acid and sepg. ***the pure*** ascorbic acid, e.g., by crystallisation.
Na ascorbate starting material is obtd. by esterifying Na salt of ***2-keto-L-gulonic acid*** in presence of strong acid and converting to Na ascorbate by base in alcoholic soln.

ADVANTAGE - 99.5% pure ascorbic acid is ***obtd. on*** mfr. scale.

Member(0013)
ABEQ JP 2921927 B2 UPAB 20060106

Prepn. of ***ascorbic acid*** from ***2-keto L gulonic acid*** (2KLC-H) which comprises: (a) 2KLG-H, possibly in the form of the sodium salt, is esterified in the presence of a strong acid (sulphuric, hydrochloric or sulphonic acid). (b) The ester of 2KLG-H is transformed, possibly in situ, into sodium ascorbate by means of a mineral or organic base in an alcoholic soln.. (c) Sodium ascorbate which pptes. is possibly sepd.. (d) The ***ascorbic acid*** is displaced from its salt by a strong acid operating in methanol or aq-methanol in which the sodium salt of the strong acid has low solubility. (e) The sodium salt of the strong acid is sepd. giving a methanolic or aq-methanolic soln. of ***ascorbic acid*** from which the pure cpd. may be isolated. (f)(i) This soln. may be passed through acid and basic resins and decolourised prior to crystallisation of the pure ***ascorbic acid*** which is sepd. by filtration.
(ii) Alternatively the soln. from (e) may be conc. and the crude ***ascorbic acid*** sepd. then redissolved in water, methanol or aq.-methanol. The soln. is then passed through acid and basic resins and decolourised before crystallisation and sepn. of the pure ***ascorbic acid***. (g) Alternatively the ***ascorbic acid*** may be displaced from its salt by treating the aq. soln. with

a sulphonic resin and then crystallising the pure ***ascorbic acid*** from the decolourised aq. soln..

ADVANTAGE - Method gives a pure form of ***ascorbic acid***.

Member(0014)
ABEQ EP 403351 B2 UPAB 20060106
Prepn. of ***ascorbic acid*** from ***2-keto L gulonic acid*** (2KLC-H) which comprises: (a) 2KLG-H, possibly in the form of the sodium salt, is esterified in the presence of a strong acid (sulphuric, hydrochloric or sulphonic acid). (b) The ester of 2KLG-H is transformed, possibly in situ, into sodium ascorbate by means of a mineral or organic base in an alcoholic soln.. (c) Sodium ascorbate which pptes. is possibly sepd.. (d) The ***ascorbic acid*** is displaced from its salt by a strong acid operating in methanol or aq-methanol in which the sodium salt of the strong acid has low solubility. (e) The sodium salt of the strong acid is sepd. giving a methanolic or aq-methanolic soln. of ***ascorbic acid*** from which the pure cpd. may be isolated. (f)(i) This soln. may be passed through acid and basic resins and decolourised prior to crystallisation of the pure ***ascorbic acid*** which is sepd. by filtration.
(ii) Alternatively the soln. from (e) may be conc. and the crude ***ascorbic acid*** sepd. then redissolved in water, methanol or aq.-methanol. The soln. is then passed through acid and basic resins and decolourised before crystallisation and sepn. of the pure ***ascorbic acid***. (g) Alternatively the ***ascorbic acid*** may be displaced from its salt by treating the aq. soln. with a sulphonic resin and then crystallising the pure ***ascorbic acid*** from the decolourised aq. soln..

ADVANTAGE - Method gives a pure form of ***ascorbic acid***. @(8pp DWg.No.0/0)

L86 ANSWER 45 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1989-233843 [32] WPIX Full-text
DNC C1989-104133 [21]
TI New L-sorbosone dehydrogenase enzyme - obtd. from Gluconobacter microorganisms, used to produce ***2-keto-L-gulonic acid*** from L-sorbosone
DC B03; D16; E13
IN FUJIWARA A; HOSHINO T; SHINJOH M
PA (HOFF-C) HOFFMANN LA ROCHE & CO AG F; (HOFF-C) HOFFMANN LA ROCHE INC; (HOFF-C) HOFFMANN-LA ROCHE AG
CYC 11

PI	WO 8906688	A	19890727 (198932)*	EN	57[5]	
	DK 8904546	A	19890914 (199003)	DA		
	EP 373181	A	19900620 (199025)	EN		C12N009-02
	JP 03500844	W	19910228 (199115)	JA		
	US 5352599	A	19941004 (199439)	EN	19[4]	C12N015-53
	EP 373181	B1	19951108 (199549)	EN	39[4]	C12N009-02
	DE 68924761	E	19951214 (199604)	DE		C12N009-02
	JP 2799380	B2	19980917 (199842)	JA	25	C12N015-09

ADT WO 8906688 A WO 1989-EP10 19890109; EP 373181 A EP 1988-100419 19880114; DE 68924761 E DE 1989-68924761 19890109; EP 373181 A EP 1989-901549 19890109; EP 373181 B1 EP 1989-901549 19890109; DE 68924761 E EP 1989-901549 19890109; JP 03500844 W JP 1989-501447 19890109; JP 2799380 B2 JP 1989-501447 19890109; US 5352599 A WO 1989-EP10 19890109; EP 373181 B1 WO 1989-EP10 19890109; DE 68924761 E WO 1989-EP10 19890109; JP 2799380 B2 WO 1989-EP10 19890109; US 5352599 A US 1990-415208 19900611
FDT DE 68924761 E Based on EP 373181 A; JP 2799380 B2 Previous Publ JP 03500844 W; US 5352599 A Based on WO 8906688 A; EP 373181 B1 Based on WO

8906688 A; DE 68924761 E Based on WO 8906688 A; JP 2799380 B2 Based on WO 8906688 A

PRAI EP 1988-100419 19880114
EP 1989-901549 19890109

IC ICM C12N009-02
ICS C12N001-20

IPCR C07K0014-195 [I,A]; C07K0014-195 [I,C]; C12N0001-21 [I,A]; C12N0001-21 [I,C]; C12N0015-00 [I,A]; C12N0015-00 [I,C]; C12N0015-09 [I,A]; C12N0015-09 [I,C]; C12N0015-53 [I,A]; C12N0015-53 [I,C]; C12N0015-74 [I,A]; C12N0015-74 [I,C]; C12N0009-02 [I,A]; C12N0009-02 [I,C]; C12N0009-04 [I,A]; C12N0009-04 [I,C]; C12P0019-00 [I,C]; C12P0019-02 [I,A]; C12P0007-40 [I,C]; C12P0007-60 [I,A]; C12R0001-01 [N,A]

AB WO 1989006688 A UPAB: 20060106
The following are claimed: (A) the coenzyme independent L-sorbosone dehydrogenase (LSD) which acts on L-sorbosone (LS) to produce ***2- keto-L-gulonic acid*** (***2-KGA***) and originating from a microorganism of the genus Gluconobacter, in homogeneous form; (B) DNA encoding a polypeptide having an activity of a novel coenzyme independent LSD capable of converting LS to 2KGA; (c) a recombinant DNA molecule which comprises the DNA sequence of (B); (D) a recombinant microorganism which has introduced the recombinant DNA molecule of (C); (E) a method of producing a transconjugant using a microorganism belonging to the genus Gluconobactar as a recipient, which comprises contacting the recipient with a donor having a plasmid containing Mob site to transfer the plasmid from the donor to the recipient with the help of Tra gene function.
The LSD is produced by cultivating a Gluconobacter microorganism or mutant, disrupting the cells and isolating and purifying it from the cell free ***extract*** of the disrupted cells, pref. the membrane fraction of the microorganism. The enzyme can also be prepared by recombinant techniques by cloning and expression of the enzyme gene from Gluconobacter microorganisms.
USE - The LSD is used for producing 2-***KGA*** from LS. The 2- ***KGA*** is an important intermediate in the synthesis of ***ascorbic acid*** (vitamin C).

MC CPI: B04-B02B1; B04-B02C2; B04-B04A1; B10-C04D; D05-A02A; D05-C09; D05-H03B; D05-H04; E10-A07

Member(0005)

ABEQ US 5352599 A UPAB 20060106
Recombinant DNA sequence encodes the prodn. of a Gluconobacter L-sorbosone-dehydrogenase that catalyses the conversion of L-sorbosone to ***2-oxo-L-gulonic acid,***
independently ***of*** a coenzyme. The nucleotide sequence of the DNA and the aminoacid seq uence of the enzyme are defined.
Plasmids and expression vectors contg. the DNA are new. Host cells are transformed with the plasmids and vectors and then propagated to produce ***the*** exogenous enzyme.
USE/ADVANTAGE - The prod., 2-oxo-L-gulonic acid, is an important intermediate for the synthesis of vitamin C. The enzyme facilitates the prodn. of vitamin C in improved yields.

Member(0008)

ABEQ JP 2799380 B2 UPAB 20060106
The following are claimed: (A) the coenzyme independent L-sorbosone dehydrogenase (LSD) which acts on L-sorbosone (LS) to produce ***2-keto-L-gulonic acid*** (***2-KGA***
) and originating from a microorganism of the genus Gluconobacter, in homogeneous form; (B) DNA encoding a polypeptide having an activity of a novel coenzyme independent LSD capable of converting LS to 2KGA; (c) a recombinant DNA molecule which comprises the DNA sequence of (B); (D) a recombinant microorganism which has introduced the recombinant DNA molecule of (C); (E) a method of producing a transconjugant using a

microorganism belonging to the genus Gluconobactar as a recipient, which comprises contacting the recipient with a donor having a plasmid contg. Mob site to transfer the plasmid from the donor to the recipient with the help of Tra gene function.
The LSD is produced by cultivating a Gluconobacter microorganism or mutant, disrupting the cells and isolating and purifying it from the cell free ***extract*** of the disrupted cells, pref. the membrane fraction of the microorganism. The enzyme can also be prepd. by recombinant techniques by cloning and expression of the enzyme gene from Gluconobacter microorganisms.
USE - The LSD is used for producing 2-***KGA*** from LS. The 2-***KGA*** is an important intermediate in the synthesis of ***ascorbic acid*** (vitamin C).

L86 ANSWER 46 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1988-229327 [33] WPIX Full-text
DNC C1988-102399 [21]
TI Converting L-sorbose to ***2-keto-L-gulonic acid*** by fermentation - using mixed culture of Gluconobacter oxydans and Bacillus megaterium
DC B05; D16; E19
IN NING W; TAO Z; WANG C; WANG S; YAN Z; YIN G
PA (MICR-N) INST MICROBIOL ACAD; (MICR-N) INST MICROBIOLOGY; (MICR-N) INST MICROBIOLOGY ACADEMIA SINICA
CYC 11
PI

EP 278447	A	19880817 (198833)*	EN	6[0]	
DK 8800597	A	19880808 (198844)	DA		
JP 01034293	A	19890203 (198911)	JA		
US 4935359	A	19900619 (199027)	EN		C12P007-60
EP 278447	B1	19930714 (199328)	EN	10[0]	C12P007-60
DE 3882242	G	19930819 (199334)	DE		C12P007-60
JP 2719340	B2	19980225 (199813)	JA	6[0]	C12P007-60
DK 173310	B	20000710 (200040)	DA		C12P007-60

ADT EP 278447 A EP 1987-810169 19870323; EP 278447 A EP 1988-101783 19880208; US 4935359 A US 1988-146276 19880203; DK 173310 B DK 1988-597 19880205; DE 3882242 G DE 1988-3882242 19880208; EP 278447 B1 EP 1988-101783 19880208; DE 3882242 G EP 1988-101783 19880208; JP 01034293 A JP 1988-27374 19880208; JP 2719340 B2 JP 1988-27374 19880208
FDT DK 173310 B Previous Publ DK 8800597 A; DE 3882242 G Based on EP 278447 A; JP 2719340 B2 Previous Publ JP 01034293 A
PRAI CN 1987-100547 19870207
EP 1987-810169 19870323
IC ICM C12P007-60
IPCR C12N0001-20 [I,A]; C12N0001-20 [I,C]; C12P0017-02 [I,C]; C12P0017-06 [I,A]; C12P0039-00 [I,A]; C12P0039-00 [I,C]; C12P0041-00 [I,A]; C12P0041-00 [I,C]; C12P0007-40 [I,C]; C12P0007-60 [I,A]; C12R0001-01 [N,A]; C12R0001-11 [N,A]
AB EP 278447 A UPAB: 20060105
Improved fermentation process for converting L-sorbose (II) to ***2 -keto-L-gulonic acid*** (I) comprises use of a mixed culture of Gluconobacter oxydans and Baccilus megaterium as the culture microorganisms. The mixed culture is claimed per se. Microorganism culture with the characteristics of culture Number 2980 (DSM No 4027) and strains DSM Nos 4025 and 4026 (CGMCC No 0119 and 0120 resp) are provided, the latter being on G.oxydans and B.megaterium strain resp. The G.oxydans microorganisms has the following characteristics which are listed in the claims: (a) (I) is produced from (II); (b) ethanol is oxidised to acetic acid; (c) D-glucose is oxidised to D-gluconic acid and 2-keto-D-gluconic acid; (d) ketogenesis of polyalcohols; (e) pellicle and ring growth in mannitol broth (24 hrs cultivation) at pH 4 and 5 and pellicle growth in glucose broth at pH 4.5; (f) glycerol is not oxidised to dihydroxyacetone; (g)

2-keto-D-glucaric acid is produced from sorbitol and glucaric acid but not from glucose, fructose, gluconic acid, mannitol or 2-keto-D- gluconic acid; (h) polymorphic, apparently no fragella; (i) brown pigment is produced from fructose; (j) good growth when co-cultured in the presence of B.megaterium or its cell ***extract***; and (k) Streptomycin sensitive.

USE/ADVANTAGE - (I) is an intermediate by way of the Reichstein method for production of ***ascorbic acid***. The process gives higher yield than prior art methods, namely at least 40 (pref. at least 50) g/l when starting from a (II) concentration of 70 g/l.

MC CPI: B04-B02B1; B10-A07; B11-A; D05-C08; D05-H08; E10-A07

Member(0004)

ABEQ US 4935359 A UPAB 20060105

Method of converting L-sorbase (I) to 2-keto-***L-gulonic acid*** (***II***) ***comprises*** producing L-sorbose 2-keto-L-gulonic acid (sic) by cultivating mixed microorganism culture system contg. Cluconobacter oxydans and Bacillus megaterium, or whole cells or cell free extract produced from mixed culture system in nutrient medium contg. L-sorbose to convert this to (II). The culture system has identifying characteristics of culture system 2980, Deutsche Sammlung Von Microorganismen No. 4027 and is capable of converting (I) to (II) in yield greater than 40g/l.

USE/ADVANTAGE - Prod. is used in mfr. of ascorbic acid. (II) is obtd. in good ***yield***. - (4pp)

Member(0007)

ABEQ JP 2719340 B2 UPAB 20060105

Improved fermentation process for converting L-sorbose (II) to ***2-keto-L-gulonic acid*** (I) comprises use of a mixed culture of Gluconobacter oxydans and Baccilus megaterium as the culture microorganisms. The mixed culture is claimed per se. Microorganism culture with the characteristics of culture No. 2980 (DSM No 4027) and strains DSM Nos 4025 and 4026 (CGMCC No 0119 and 0120 resp) are provided, the latter being on G.oxydans and B.megaterium strain resp. The G.oxydans microorganisms has the following characteristics which are listed in the claims: (a) (I) is produced from (II); (b) ethanol is oxidised to acetic acid; (c) D-glucose is oxidised to D-gluconic acid and 2-keto-D-gluconic acid; (d) ketogenesis of polyalcohols; (e) pellicle and ring growth in mannitol broth (24 hrs cultivation) at pH 4 and 5 and pellicle growth in glucose broth at pH 4.5; (f) glycerol is not oxidised to dihydroxyacetone; (g) 2-keto-D-glucaric acid is produced from sorbitoal and glucaric acid but not from glucose, fructose, gluconic acid, mannitol or 2-keto-D- gluconic acid; (h) polymorphic, apparently no fragella; (i) brown pigment is produced from fructose; (j) good growth when co-cultured in the presence of B.megaterium or its cell ***extract***; and (k) Streptomycin sensitive.

USE/ADVANTAGE - (I) is an intermediate by way of the Reichstein method for prodn. of ***ascorbic acid***. The process gives higher yield than prior art methods, namely at least 40 (pref. at least 50) g/l when starting from a (II) concn. of 70 g/l.

L86 ANSWER 47 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN

AN 1987-171392 [25] WPIX Full-text

DNC C1987-071375 [21]

TI ***2-Keto-L-gulonic acid*** production from sorbose - by fermenting with new Pseudo-gluconobacter strains, opt. together with second microorganism

DC B05; D16; E17

IN NOGAMI A; NOGAMI I; OKA M; SHIRAFUJI H; YAMAGUCHI T

PA (TAKE-C) TAKEDA CHEM IND LTD

CYC 19
PI EP 221707 A 19870513 (198725)* EN 16[0]
DK 8604896 A 19870423 (198746) DA
JP 62228288 A 19871007 (198746) JA C12P007-60
HU 43636 T 19871130 (198751) HU
CN 86107277 A 19870715 (198838) ZH
EP 221707 B1 19930310 (199310) EN 22[0] C12P007-60
DE 3687946 G 19930415 (199316) DE C12P007-60
CA 1318871 C 19930608 (199328) EN C12P007-60
JP 06007157 A 19940118 (199407) JA 13[0] C12N001-20
JP 06038752 B2 19940525 (199419) JA 12 C12P007-60
ES 2053443 T3 19940801 (199432) ES C12P007-60
JP 07008235 B2 19950201 (199509) JA 11 C12N001-20
CN 1024022 C 19940316 (199525) ZH C12P007-60
US 5474924 A 19951212 (199604) EN 9[0] C12P007-60
DK 171869 B 19970721 (199736) DA C12P007-60
KR 9509199 B1 19950816 (199843) KO C12P007-60
ADT EP 221707 A EP 1986-308062 19861017; JP 62228288 A JP 1985-236857 19851022; JP 62228288 A JP 1985-291472 19851224; US 5474924 A Cont of US 1986-913230 19861001; DK 171869 B DK 1986-4896 19861014; DE 3687946 G DE 1986-3687946 19861017; EP 221707 B1 EP 1986-308062 19861017; DE 3687946 G EP 1986-308062 19861017; ES 2053443 T3 EP 1986-308062 19861017; CA 1318871 C CA 1986-520945 19861021; CN 1024022 C CN 1986-107277 19861021; JP 62228288 A JP 1986-251130 19861021; JP 06007157 A Div Ex JP 1986-251130 19861021; JP 06038752 B2 JP 1986-251130 19861021; JP 07008235 B2 Div Ex JP 1986-251130 19861021; KR 9509199 B1 KR 1986-8822 19861021; US 5474924 A US 1989-438999 19891122; JP 06007157 A JP 1993-76754 19861021; JP 07008235 B2 JP 1993-76754 19861021
FDT DK 171869 B Previous Publ DK 8604896 A; DE 3687946 G Based on EP 221707 A; ES 2053443 T3 Based on EP 221707 A; JP 07008235 B2 Based on JP 06007157 A; JP 06038752 B2 Based on JP 62228288 A
PRAI JP 1986-251130 19861021
JP 1985-236857 19851022
JP 1985-291472 19851224
IC ICM C12N001-20; C12P007-60
ICI C12R001:01
IPCR C12N0001-20 [I,A]; C12N0001-20 [I,C]; C12N0001-38 [I,A]; C12N0001-38 [I,C]; C12P0039-00 [I,A]; C12P0039-00 [I,C]; C12P0007-40 [I,C]; C12P0007-40 [I,C]; C12P0007-60 [I,A]; C12P0007-60 [I,A]; C12R0001-01 [N,A]; C12R0001-07 [N,A]; C12R0001-085 [N,A]; C12R0001-10 [N,A]; C12R0001-11 [N,A]; C12R0001-125 [N,A]; C12R0001-18 [N,A]; C12R0001-185 [N,A]; C12R0001-20 [N,A]; C12R0001-265 [N,A]; C12R0001-37 [N,A]; C12R0001-38 [N,A]; C12R0001-64 [N,A]
AB EP 221707 A UPAB: 20050425
Production of ***2-keto-L-gulonic acid*** (I) comprises incubating a Pseudogluconobacter microorganism (opt. in processed form) with L-sorbose (II). The microorganism is P. saccharoketogenes, especially the strains FERM BP-1128, 1129, 1130, 1131, 1132 and 1133, opt. used together with at least one microorganism of the genera Bacillus, Pseudomonas, Preoteus, Citrobacter, Enterobacter, Erwinia, Xanthomonas, Flavobacterium, Micrococcus or Escherichia. Biologically pure cultures of P. saccharoketogenes which grow aerobically in presence of coenzyme A are claimed.
USE/ADVANTAGE - (I) is an intermediate in synthesis of ***ascorbic acid***. These new microorganisms produce far better yields of (I) than known species, especially when used together with a second microorganism.
MC CPI: B04-B02B1; B10-A07; D05-C08; D05-H04; E10-A07

Member(0009)
ABEQ JP 06007157 A UPAB 20050425
Pseudogluconobacter saccharoketogenes ***of aerobic***

bacteria, growing with presence of coenzyme A, is new.
The bacterial is positive of oxydase, capable to produce acetic acid from ethanol. The bacteria is Pseudogluconobacter saccharoketogenes K591S (FERM BP-1130), Pseudogluconobacter saccharoketogenes 12-5 (FERM BP-1129), Pseudogluconobacter saccharoketogenes TH 14-86 (FERM BP-1128), Pseudogluconobacter saccharoketogenes 12-15 (FERM BP-1132), Pseudogluconobacter saccharoketogenes 12-4 (FERM BP-1131), or Pseudogluconobacter saccharoketogenes 22-3 (FERM BP-1133).
USE/ADVANTAGE - The bacteria is used for permentation of *2-keto*-L-gulonic acid useful for synthesis of L-ascorbic acid. - In an example, Pseudogluconobacter saccharoketogenes K 591 S (IFO 14464, FERM BP-1130) was added to a fermentation medium (25 ml) of CLS (2.0%), dried (0.5%), ammonium sulphate (0.5%), Na2S2O3 (0.05%), iron (I) sulphate (0.2%), CsCO3 (4.0%), and L-sorbose (10.05), and cultured at 30 deg.C for 3 days. Obtd. fermentation soln. contained 60.5 mg/ml of *2-keto-L-gulonic acid*. The soln. was centrifuged to obtain a supernatant (980 ml), which was purified by Amberlite column, and condensed to obtain a condensate. The condensate was left at 5 deg.C for 24 hrs. to give colourless pillar crystal. The crystal was cleaned by cooled methanol, and dried by phosphorus pentoxide to obtain monosodium 2-keto-L-gulonate-monohydrate (37.5 g).

Member(0010)
ABEQ JP 94038752 B2 UPAB 20050425
Prodn. of *2-keto-L-gulonic acid* (I) comprises incubating a Pseudogluconobacter microorganism (opt. in processed form) with L-sorbose (II).
The microorganism is P. saccharoketogenes, esp. the strains FERM BP-1128, 1129, 1130, 1131, 1132 and 1133, opt. used together with at least one microorganism of the genera Bacillus, Pseudomonas, Pr oteus, Citrobacter, Enterobacter, Erwinia, Xanthomonas, Flavobacterium, Micrococcus or Escherichia. Biologically pure cultures of P. saccharoketogenes which grow aerobically in presence of coenzyme A are claimed.
USE/ADVANTAGE - (I) is an intermediate in synthesis of *ascorbic acid*. These new microorganisms produce far better yields of (I) than known species, esp. when used together with a second microorganism.

Member(0012)
ABEQ JP 95008235 B2 UPAB 20050425
Prodn. of *2-keto-L-gulonic acid* (I) comprises incubating a Pseudogluconobacter microorganism (opt. in processed form) with L-sorbose (II).
The microorganism is P. saccharoketogenes, esp. the strains FERM BP-1128, 1129, 1130, 1131, 1132 and 1133, opt. used together with at least one microorganism of the genera Bacillus, Pseudomonas, Preoteus, Citrobacter, Enterobacter, Erwinia, Xanthomonas, Flavobacterium, Micrococcus or Escherichia. Biologically pure cultures of P. saccharoketogenes which grow aerobically in presence of coenzyme A are claimed.
USE/ADVANTAGE - (I) is an intermediate in synthesis of *ascorbic acid*. These new microorganisms produce far better yields of (I) than known species, esp. when used together with a second microorganism.

L86 ANSWER 48 OF 48 WPIX COPYRIGHT 2007 THE THOMSON CORP on STN
AN 1986-057066 [09] WPIX Full-text
DNC C1986-024175 [21]
TI Electrolytic preparation of keto-gulonic acids - for use as *ascorbic*

```
     acid intermediates
DC   B03; E13
PA   (UYMA-N) UNIV DE MURCIA
CYC  1
PI   ES 8506685      A  19851116 (198609)* ES
ADT  ES 8506685 A ES 1984-536836 19841018
PRAI ES 1984-536836 19841018
IPCR B01J0019-08 [I,A]; B01J0019-08 [I,C]; C07D0307-00 [I,C]; C07D0307-62 [I,A]
AB   ES 8506685 A   UPAB: 20050423
       2-Keto L-gulonic acids
     are made by (a) dissolving 0.05 mol of a cpd. of formula (I), in which R is
     methyl, furyl, etc., 0.2 mol. of CaI2 and 0.1 mol of Ca(OH)2 in 100 ml. water
     in a non-compartmented cell; (b) subjecting the solution to electrolysis at 25
     deg.C with magnetic stirring, using a Pt anode and stainless steel cathode,
     with current density of 10A for 1 hr.; (c) acidifying to an acid pH; (d)
     filtering to remove iodine and surplus water; (e) extracting the residue with
     chloroform; and (f) hydrolysing the residue with 0.1 N HCl.
MC   CPI: B10-A07; E06-A02E


=> d his full

     (FILE 'HOME' ENTERED AT 11:00:34 ON 02 APR 2007)

     FILE 'HCAPLUS' ENTERED AT 11:00:46 ON 02 APR 2007
                E US2005-539960/APPS
L1            2 SEA ABB=ON  PLU=ON  US2005-539960/AP
                D SCAN
                SEL RN L1

     FILE 'REGISTRY' ENTERED AT 11:04:58 ON 02 APR 2007
L2            7 SEA ABB=ON  PLU=ON  (1070-01-5/BI OR 1116-76-3/BI OR 112-30-1/B
                I OR 25339-17-7/BI OR 50-81-7/BI OR 526-98-7/BI OR 7732-18-5/BI
                )
                D SCAN
L3            1 SEA ABB=ON  PLU=ON  526-98-7
L4           14 SEA ABB=ON  PLU=ON  526-98-7/CRN
                D BROW L3
L*** DEL     27 S 50-81-
L5            1 SEA ABB=ON  PLU=ON  50-81-7
                D BROW
L6           15 SEA ABB=ON  PLU=ON  (L3 OR L4)

     FILE 'STNGUIDE' ENTERED AT 11:08:01 ON 02 APR 2007

     FILE 'HCAPLUS' ENTERED AT 11:09:21 ON 02 APR 2007
L7          479 SEA ABB=ON  PLU=ON  L6
                E KGA/CT
                E 2-KETO-L-GULONIC ACID/CT
                E 2-KETO/CT
L8          560 SEA ABB=ON  PLU=ON  2-KETO-L-GULONIC ACID?
L9            7 SEA ABB=ON  PLU=ON  2-KETO-L-IDONIC ACID?
L10           2 SEA ABB=ON  PLU=ON  L-XYLOHEXULOSONIC ACID?
L11          65 SEA ABB=ON  PLU=ON  L-XYLO-HEXULOSONIC ACID?
L12          43 SEA ABB=ON  PLU=ON  L-XYLO-2-HEXULOSONIC ACID?
L13         703 SEA ABB=ON  PLU=ON  (L7 OR L8 OR L9 OR L10 OR L11 OR L12)
L14         407 SEA ABB=ON  PLU=ON  KGA
L15        1086 SEA ABB=ON  PLU=ON  (L13 OR L14)
L16       82879 SEA ABB=ON  PLU=ON  L5
                E ASCORBIC ACID/CT
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                E E3+ALL
                E E2+ALL
L17         84922 SEA ABB=ON  PLU=ON  "L-ASCORBIC ACID"+NT/CT
                E ASCORBIC ACID/CT
                E E4+ALL
                E E2+ALL
L18          1957 SEA ABB=ON  PLU=ON  "ASCORBATE OXIDASE"/CT
                E ASCORBIC ACID/CT
                E E5+ALL
                E E2+ALL
L19          1941 SEA ABB=ON  PLU=ON  "ASCORBATE PEROXIDASE"/CT
                E ASCORBIC ACID/CT
                E E6+ALL
                E E2+ALL
L20          2483 SEA ABB=ON  PLU=ON  "SODIUM ASCORBATE"/CT
L21         83872 SEA ABB=ON  PLU=ON  ASCORBIC ACID?
L22            69 SEA ABB=ON  PLU=ON  ADENEX OR ALLERCORB OR ASCOLTIN OR
                ASCORVIT OR ASCORIN OR CANTAN OR CANTAXIN OR CECON OR CEKLIN
                OR CELIN OR CEVEX OR CEVIMAN OR CETEBE OR CECON
L23        110498 SEA ABB=ON  PLU=ON  (L16 OR L17 OR L18 OR L19 OR L20 OR L21 OR
                L22)
L24            372 SEA ABB=ON  PLU=ON  L15 AND L23
L25              9 SEA ABB=ON  PLU=ON  L24 AND (EXTRACTION?)
                D KWIC
                D KWIC 2
                D KWIC 3
L26              9 SEA ABB=ON  PLU=ON  L25 AND (PY<2004 OR AY<2004 OR PRY<2004)
L27              9 SEA ABB=ON  PLU=ON  (L1 OR L25)
L28             27 SEA ABB=ON  PLU=ON  L15 AND EXTRACTION?
L29              9 SEA ABB=ON  PLU=ON  L28 AND L5
L30              7 SEA ABB=ON  PLU=ON  L28 AND AMINE?
L31             12 SEA ABB=ON  PLU=ON  (L29 OR L30)
L32             15 SEA ABB=ON  PLU=ON  L28 AND L2
L33             15 SEA ABB=ON  PLU=ON  (L30 OR L31 OR L32 OR L25)
L34             76 SEA ABB=ON  PLU=ON  L15 AND EXTRACT?
L35             54 SEA ABB=ON  PLU=ON  L34 AND L2
L36             21 SEA ABB=ON  PLU=ON  L34 AND L5
L37             11 SEA ABB=ON  PLU=ON  L34 AND AMINE?
L38             28 SEA ABB=ON  PLU=ON  (L36 OR L37)
L39             28 SEA ABB=ON  PLU=ON  L38 AND (PY<2004 OR AY<2004 OR PRY<2004)
L40             31 SEA ABB=ON  PLU=ON  (L39 OR L33)
L41             21 SEA ABB=ON  PLU=ON  L35 AND L5
L42             31 SEA ABB=ON  PLU=ON  (L41 OR L40)

    FILE 'MEDLINE, EMBASE, BIOSIS, CAOLD, DRUGU, WPIX' ENTERED AT 11:21:00 ON
    02 APR 2007
L43             98 SEA ABB=ON  PLU=ON  L6
L44            648 SEA ABB=ON  PLU=ON  (L8 OR L9 OR L10 OR L11 OR L12 OR L13 OR
                L14)
L45            648 SEA ABB=ON  PLU=ON  (L43 OR L44)
L46          95929 SEA ABB=ON  PLU=ON  L5
L47         124495 SEA ABB=ON  PLU=ON  (L21 OR L22)
L48         137966 SEA ABB=ON  PLU=ON  (L46 OR L47)
L49            707 SEA ABB=ON  PLU=ON  (L43 OR L44)
L50            250 SEA ABB=ON  PLU=ON  L49 AND L48
L51             22 SEA ABB=ON  PLU=ON  L50 AND EXTRACT?
                D KWIC
                D KWIC 2

    FILE 'HCAPLUS' ENTERED AT 11:25:00 ON 02 APR 2007
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     FILE 'REGISTRY' ENTERED AT 11:25:14 ON 02 APR 2007
                E TERTIARY AMINE/CN
L52           2 SEA ABB=ON  PLU=ON  L2 AND N/ELS
                D SCAN

     FILE 'HCAPLUS' ENTERED AT 11:26:41 ON 02 APR 2007
L53        3396 SEA ABB=ON  PLU=ON  L52
                E TERTIARY AMINE/CT
                E E5+ALL
                E E2+ALL
L54        8087 SEA ABB=ON  PLU=ON  "AMINES (L) TERTIARY"/CT
                E TERTIARY AMINE/CT
                E E7+ALL
                E E2+ALL
L55         293 SEA ABB=ON  PLU=ON  "AMINES (L) ARYL, TERTIARY"/CT
                E TERTIARY AMINE/CT
                E E9+ALL
                E E2+ALL
L56         293 SEA ABB=ON  PLU=ON  "AMINES (L) ARYL, TERTIARY"/CT

     FILE 'REGISTRY' ENTERED AT 11:28:05 ON 02 APR 2007
                E OCTYLAMINE/CN

     FILE 'HCAPLUS' ENTERED AT 11:28:05 ON 02 APR 2007
                E OCTYLAMINE/CT
                E E3+ALL
L57        4277 SEA ABB=ON  PLU=ON  OCTYLAMINE/CT
                E OCTYLAMINE?
L58        5902 SEA ABB=ON  PLU=ON  OCTYLAMINE?
                E DECYLAMINE/CT
                E E3+ALL
L59        1905 SEA ABB=ON  PLU=ON  DECYLAMINE/CT
L60        1787 SEA ABB=ON  PLU=ON  DECYLAMINE?
L61       23813 SEA ABB=ON  PLU=ON  TERTIARY AMINE?
L62       36635 SEA ABB=ON  PLU=ON  (L53 OR L54 OR L55 OR L56 OR L57 OR L58 OR
                L59 OR L60 OR L61)
L63           2 SEA ABB=ON  PLU=ON  L15 AND L23 AND L62

     FILE 'MEDLINE, EMBASE, BIOSIS, CAOLD, WPIX, DRUGU' ENTERED AT 11:29:45 ON
     02 APR 2007
L64         133 SEA ABB=ON  PLU=ON  L52
L65       27587 SEA ABB=ON  PLU=ON  (L61 OR L58 OR L60)
L66           5 SEA ABB=ON  PLU=ON  (L64 OR L65) AND L49 AND L48

     FILE 'HCAPLUS' ENTERED AT 11:30:55 ON 02 APR 2007
                E DOMSCHKE T/AU
L67          34 SEA ABB=ON  PLU=ON  ("DOMSCHKE T"/AU OR "DOMSCHKE TH"/AU OR
                "DOMSCHKE THOMAS"/AU)
                E MERGER M/AU
L68          39 SEA ABB=ON  PLU=ON  ("MERGER M"/AU OR "MERGER MARTIN"/AU)
                E DECKERT P/AU
L69          11 SEA ABB=ON  PLU=ON  ("DECKERT P"/AU OR "DECKERT P M"/AU OR
                "DECKERT PETRA"/AU)
                E SAUER F/AU
L70         129 SEA ABB=ON  PLU=ON  ("SAUER F"/AU OR "SAUER F C"/AU OR "SAUER
                F D"/AU OR "SAUER F G"/AU OR "SAUER F M"/AU OR "SAUER FRED"/AU
                OR "SAUER FREDERIC"/AU OR "SAUER FREDERIC G"/AU OR "SAUER
                FREDERIC GEORGE"/AU OR "SAUER FREDERICK"/AU)
L71           0 SEA ABB=ON  PLU=ON  L67 AND L68 AND L69 AND L70
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                E SAUER F/AU
L72          164 SEA ABB=ON  PLU=ON  ("SAUER FRED"/AU OR "SAUER FREDERIC"/AU OR
                 "SAUER FREDERIC G"/AU OR "SAUER FREDERIC GEORGE"/AU OR "SAUER
                 FREDERICK"/AU OR "SAUER FRIEDER"/AU OR "SAUER FRIEDHELM"/AU OR
                 "SAUER FRIEDRICH"/AU OR "SAUER FRIEDRICH A"/AU OR "SAUER
                 FRIEDRICH G"/AU OR "SAUER F"/AU OR "SAUER F C"/AU OR "SAUER F
                 D"/AU OR "SAUER F G"/AU OR "SAUER F M"/AU OR "SAUER FR G"/AU)
L73          164 SEA ABB=ON  PLU=ON  (L70 OR L72)
L74            3 SEA ABB=ON  PLU=ON  L67 AND L68 AND L69 AND L73
L75            7 SEA ABB=ON  PLU=ON  (L67 OR L68 OR L69 OR L70 OR L72) AND L15
L76            7 SEA ABB=ON  PLU=ON  (L74 OR L75)
L77            4 SEA ABB=ON  PLU=ON  L76 NOT L42

     FILE 'HCAPLUS, MEDLINE, EMBASE, BIOSIS, DRUGU, WPIX' ENTERED AT 11:33:56
     ON 02 APR 2007
L78           52 SEA ABB=ON  PLU=ON  DOMSCHKE T?/AU
L79          126 SEA ABB=ON  PLU=ON  MERGER M?/AU
L80           62 SEA ABB=ON  PLU=ON  DECKERT P?/AU
L*** DEL      62 S DECKERT P?/AU
L81          848 SEA ABB=ON  PLU=ON  SAUER F?/AU
L82            7 SEA ABB=ON  PLU=ON  L78 AND L79 AND L80 AND L81
L83           13 SEA ABB=ON  PLU=ON  (L78 OR L79 OR L80 OR L81) AND L45
L84           14 SEA ABB=ON  PLU=ON  (L82 OR L83)

     FILE 'STNGUIDE' ENTERED AT 11:35:15 ON 02 APR 2007
                D QUE L77
                D QUE L84

     FILE 'HCAPLUS, WPIX' ENTERED AT 11:35:22 ON 02 APR 2007
L85            8 DUP REM L77 L84 (10 DUPLICATES REMOVED)
                     ANSWERS '1-7' FROM FILE HCAPLUS
                     ANSWER '8' FROM FILE WPIX
                D IBIB ABS RETABLE L85 TOT
                D QUE L42
                D QUE L51
                D QUE L63
                D QUE L66

     FILE 'HCAPLUS, BIOSIS, WPIX' ENTERED AT 11:36:03 ON 02 APR 2007
L86           48 DUP REM L42 L51 L63 L66 (12 DUPLICATES REMOVED)
                     ANSWERS '1-31' FROM FILE HCAPLUS
                     ANSWERS '32-33' FROM FILE BIOSIS
                     ANSWERS '34-48' FROM FILE WPIX
                D IBIB ABS HITIND RETABLE L86 1-31
                D IBIB ABS L86 32-33
                D ALL ABEQ TECH L86 34-48


     FILE HOME

     FILE HCAPLUS

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FILE COVERS 1907 - 2 Apr 2007 VOL 146 ISS 15
FILE LAST UPDATED: 1 Apr 2007 (20070401/ED)

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Property values tagged with IC are from the ZIC/VINITI data file provided by InfoChem.

STRUCTURE FILE UPDATES: 1 APR 2007 HIGHEST RN 928822-97-3
DICTIONARY FILE UPDATES: 1 APR 2007 HIGHEST RN 928822-97-3

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FILE STNGUIDE
FILE CONTAINS CURRENT INFORMATION.
LAST RELOADED: Mar 30, 2007 (20070330/UP).

FILE MEDLINE
FILE LAST UPDATED: 31 Mar 2007 (20070331/UP). FILE COVERS 1950 TO DATE.

All regular MEDLINE updates from November 15 to December 16 have been added to MEDLINE, along with 2007 Medical Subject Headings (MeSH(R)) and 2007 tree numbers.

The annual reload will be available in early 2007.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE EMBASE
FILE COVERS 1974 TO 2 Apr 2007 (20070402/ED)

EMBASE is now updated daily. SDI frequency remains weekly (default) and biweekly.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BIOSIS
FILE COVERS 1969 TO DATE.
CAS REGISTRY NUMBERS AND CHEMICAL NAMES (CNs) PRESENT
FROM JANUARY 1969 TO DATE.

RECORDS LAST ADDED: 28 March 2007 (20070328/ED)

FILE CAOLD
FILE COVERS 1907-1966
FILE LAST UPDATED: 01 May 1997 (19970501/UP)

This file contains CAS Registry Numbers for easy and accurate substance identification. Title keywords, authors, patent assignees, and patent information, e.g., patent numbers, are now searchable from 1907-1966. TIFF images of CA abstracts printed between 1907-1966 are available in the PAGE display formats.

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FILE DRUGU
FILE LAST UPDATED: 30 MAR 2007 <20070330/UP>
>>> DERWENT DRUG FILE (SUBSCRIBER) <<<

>>> FILE COVERS 1983 TO DATE <<<
>>> THESAURUS AVAILABLE IN /CT <<<

FILE WPIX
FILE LAST UPDATED: 29 MAR 2007 <20070329/UP>
MOST RECENT THOMSON SCIENTIFIC UPDATE: 200721 <200721/DW>
DERWENT WORLD PATENTS INDEX SUBSCRIBER FILE, COVERS 1963 TO DATE

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